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Interviewer's Manual

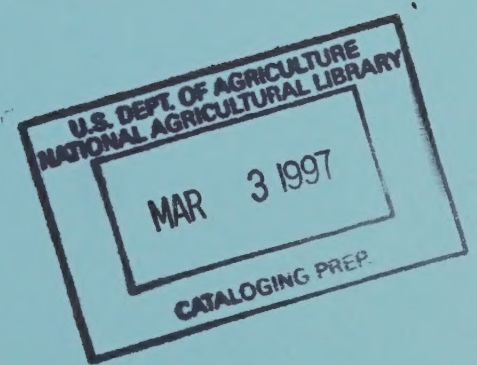
Farm Cost & Returns Survey (FCRS)

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Year-to-Year Changes
1987 FCRS Interviewer's Manual

Chapter	Changes(s)
1-General	Theme provided
2-Terms & Definitions	Several new terms introduced; most others standardized with JES/QAS
3-Enumerator Procedures	Major improvements on completion of questionnaire
4-Screening	Made similar to JES screening
5-Expenditure	Modified to reflect major improvements
6-Aggregate	Modified to reflect major improvements
7-Corn COPS	Modified to reflect major improvements
8-Peanuts	Modified to reflect major improvements
9-Tobacco	Modified to reflect major improvements
10-Barley	Modified to reflect major improvements
11-Cotton	Modified to reflect major improvements
12-Cattle on Feed	Modified to reflect major improvements
13-Household	Not Used
14-Appendices	Provides enumeration instructions for three research projects: 1) Free Subscription Offer 2) Use of JES Segments 3) Farm/Ranch Individual Analysis

CHAPTER 1
GENERAL
1987 FARM COSTS AND RETURNS SURVEY



History

Prior to 1984 the National Agricultural Statistics Service conducted two major surveys during the winter and spring months, the Farm Production Expenditure Survey (FPES) and the Cost of Production Survey (COPS). In 1984, a decision was reached to combine these two surveys into one omnibus survey, and call it the Farm Costs and Returns Survey (FCRS).

The decision for such a major change was based primarily on two factors. First, just as agriculture itself was becoming increasingly complex, so was the data that was needed to stay abreast of these complexities. As American agriculture became more and more affected by worldwide influences, increasing amounts of data were needed to determine exactly where and how these influences were affecting agriculture.

Secondly, with the cost of collecting data increasing and the federal budget decreasing, it became necessary to search for cost efficiencies. Creation of the FCRS reduced costs significantly by eliminating duplication of effort in many areas.

"Taking the Pulse of Agriculture"

American agriculture and the data needed to stay abreast of it were not the only things to become increasingly complex. Over the years, as additional data needs have surfaced, each new need for data created an additional explanation to producers as to the purpose for this survey. Considering the difficulty of explaining the need for (and benefits of) this survey to producers, in about three sentences or less, it became apparent that a new approach was needed.

Those of us involved with the Farm Costs and Returns Survey are now making the comparison of this survey to the multitude of tests that a doctor gives to a patient at an annual physical examination. We call it "Taking the Pulse of Agriculture" because the survey provides the type of critical information to

farmers, lawmakers, analysts, extension and university people that an annual physical examination provides to your family doctor. Just as your doctor requires numerous tests to determine your overall physical condition, and what remedies to recommend, the people in the role of "doctors" for agriculture have many questions that need answers so that they can determine the economic health of agriculture, and whether or not to offer remedies for those areas of the industry that are in need of help.

The following two paragraphs were excerpted from a farm article written by Don Kendall, Associated Press Farm Writer.

"Just about any agricultural pulse feeler has a quick diagnosis and remedy at hand for what ails the American farmer, often involving huge doses of something or other to take away those nagging backaches and occasional bankruptcy blues.

In reality, says Agriculture Department economist Clark Edwards, there may be a number of ailments going on at the same time, each requiring its own dosages. But the welfare of the whole patient must be kept in mind and restored to proper balance."

The primary source of information for determining this "patient's" welfare is the Farm Costs and Returns Survey, and <u>you</u> are truly "Taking the Pulse of Agriculture."

Specific Purposes of the FCRS

The specific purposes of this survey are:

1. To help determine farmers' net farm income and cash income levels for 1987.

2. To determine what it costs farmers to produce crop and livestock commodities.

3. To provide data on the financial situation of farm operators.

4. To help determine the amount of debt held by farm operators and estimate the farm sector balance sheet.

5. To estimate farm productivity per quantity of inputs used.

6. To determine the relative importance of various production expense items and groups of items.

FCRS information is used by farmers, farm organizations, agribusiness, Congress, and the Department when decisions are made that affect agriculture. These data are vital for evaluation of the current income and financial situation of farmers and in planning for the future.

Using FCRS data to estimate farm income

The collection of farm related income and production expenses data is necessary to develop the estimate of net farm income earned from production each year because:

1. **Total production expenses have changed dramatically in recent years as rapid change has occurred in agriculture.** Farmers and ranchers buy most of their inputs and the quantity and prices of these inputs change greatly from year to year. Thus in order to accurately estimate annual expenses for inputs such as interest, fertilizer, and pesticide expenses which are highly variable, data must be collected from farmers and ranchers every year through a personally enumerated survey. The FCRS is the only national data source for most expense items.

   The USDA estimate of the income statement for farming is designed to link earnings and expenses associated

with the production and sale of agricultural commodities. It measures profitability over a specific period of time, a calendar year. Two measures of farm income are developed by USDA. First, an estimate of net cash income shows how much cash farmers elect to receive versus their cash outlays. Net cash income measures the difference between the flow of cash in and out of farming. Second, net farm income is calculated to determine how much farmers earned from production of farm commodities after noncash adjustments are made, such as depreciation or value of inventory changes.

2. **Components of gross income such as net rent to landlords, custom and machine work, and other farm related income items change annually as acreage and production practices change.** Custom work and machine hire are directly affected by weather and other natural events that are unpredictable. These income items are measured through the survey.

Estimating Cost Of Production with FCRS Data

The development of annual cost of production estimates is mandated by Congress. A comprehensive whole farm survey, such as the FCRS, is necessary to obtain the type and quality of data necessary to assure both farmers and the public that accurate and reliable estimates are being prepared.

Costs and returns estimates at the crop and livestock enterprise level provide the initial perspective needed for understanding changes in the economic well-being of U.S. agriculture. The FCRS provides almost all of the basic data needed to develop enterprise budgets showing cost and input use by size and type of farm in different regions.

Input use includes such items as the types of machinery operations performed, fertilizer quantities, labor use (both paid and unpaid), drying costs and irrigation practices. Since enterprise costs and returns are important for analyzing changes in the financial well-being of farms (which normally consist of a group of enterprises), the Farm Costs and Returns Survey is organized so that whole farm production expenses, crop and livestock receipts, and organizational characteristics of the farm may be analyzed to better understand the enterprise costs of production. Each year different crop and livestock enterprises are surveyed to gather data on technical production practices and specific input uses.

Using FCRS Data to Access the Financial Situation of Farmers

The annual collection of farm receipts, expenses and financial data such as debts and assets is necessary in order to have the information needed to fully evaluate the financial situation of farmers and ranchers.

NASS and ERS are looked to by the Office of the Secretary, the Congress, farm groups, and the public for both reliable and current information and analysis concerning the financial conditions of farmers by size and type of farm, and by region. The need to have reliable up to date farm financial analysis has been highlighted by the deterioration of the farm economy over the last several years as a result of a prolonged period of excess supply, lower farm prices, reduced exports, and high interest rates that have placed increased pressure on the incomes and net worths of farmers. The amount of financial stress encountered by any farmer or rancher depends on the amount of debt owed, the amount of old-versus-new-debt, types of commodities produced, and government program participation.

The FCRS is the only survey conducted by the Department or anywhere within the government capable of providing data to assess the extent and seriousness of financial problems facing farmers and farm asset owners and the likely future consequences of continued financial stress including: declining asset values, increasing debt to asset ratio's, insufficient cash income to service debt and family living needs, and the ability of farmers to remain solvent and maintain access to credit.

Using FCRS Data to Estimate the Farm Balance Sheet

The annual farm asset and debt data are also used to help develop the estimate of the farm balance sheet.

Changes in income affect rates of return and the farm sector's net worth both directly and indirectly. Purchases and sales of assets, such as buildings, machinery, and land, and changes in their value and any associated debt are very sensitive to changes in the earnings and economic performance of the farm sector as well as to changes which occur in the U.S. general economy. Changes in the balance sheet have occurred rapidly from one year to the next and can only be adequately monitored through collection of annual data. The FCRS provides the data necessary to develop annual estimates of the farm operator's assets, debts, equity, capital gains, capital flows, and the rates of return to agricultural resources.

These items are used to measure both the net worth of farmers and the ability of farmers and ranchers to meet debt payments out of current earnings. This provides a perspective on financial conditions at a given time.

Using FCRS Data to Estimate Farm Productivity

Farm production expense data from the FCRS are a necessary tool for estimating how effectively the farm sector uses various production inputs to produce crop and livestock products.

The aggregate expenditure data used to estimate farm income and the balance sheet are also used to measure input use in agriculture. Without the FCRS, data would not be available for estimating changes in annual input use accurately and, therefore, estimating changes in agricultural productivity. These productivity measures include the ratio of annual total farm output to total farm input use. These data are used for examining regional and national trends in how efficiently agricultural inputs are used.

Using FCRS Data for Agribusiness

Major uses of FCRS production expenditure and and financial conditions data by agribusiness include:

Industry uses published data to develop forecasts of needed volumes of agricultural production inputs such as seed, fertilizer, agricultural chemicals, feed, purchases of machinery and tractors, construction of buildings, and other land improvements. Having adequate quantities of these items are important for the efficient and profitable functioning of both farmers and agribusinesses. Finally, agribusiness also uses this data to analyze long range supply, demand, and price trends for production inputs and in developing long range business decisions.

Publication

NASS will publish farm production expenditure data for the ten economic regions of the United States in June 1988. This publication is available free to respondents. The ten economic regions and the states included are:

Northeast (NE):	CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT
Lake States (LK):	MI, MN, WI
Corn Belt: (CB)	IL, IN, IA, MO, OH
Northern Plains (NP):	KS, NE, ND, SD
Appalachian (AP):	KY, NC, TN, VA, WY
Southeast (SE):	AL, FL, GA, SC
Delta (DE):	AR, LA, MS
Southern Plains (SP):	OK, TX
Mountain (MT):	AZ, CO, ID, MT, NV, NM, UT, WY
Pacific (PA):	CA, OR, WA

The data collected in the FCRS are used in numerous Situation and Outlook activities of USDA. ERS uses the expense, income, and financial data in the five "Economic Indicators of the Farm Sector" publications that include Cost of Production, 1987, Income and Balance Sheet Statistics, 1987, Productivity and Efficiency Statistics, 1986, State Income and Balance Sheet Statistics, 1987 and the Farm Sector Review, 1987.

In addition, Farm Financial Characteristics, January 1987, will be published to provide current information concerning the farm financial situation.

CHAPTER 2
TERMS & DEFINITIONS
1987 FARM COSTS AND RETURNS SURVEY

Agricultural Production

The classification of agricultural production covers establishments (farms, ranches, dairies, greenhouses, nurseries, orchards, etc.) primarily engaged in the production of crops, plants, vines, or trees (excluding forestry operations); and the keeping, grazing, or feeding of livestock for sale or sale of livestock products. Livestock includes cattle, sheep, goats, hogs, and poultry. Also included are animal specialties such as horses, rabbits, bees, fur-bearing animals and fish in captivity. Agricultural production also includes establishments primarily engaged in the production of bulbs, flower seeds, and vegetable seeds as well as specialty operations such as sod farms, mushroom cellars, and cranberry bogs.

CCC

The Commodity Credit Corporation (CCC) is a government corporation initially managed and operated in close affiliation with the depression-created Reconstruction Finance Corporation, which funded its operations. It was transferred to USDA in 1939 and was reincorporated in 1948. Within USDA the CCC has the responsibility for performing financial and storage functions related to the price and income support programs.

The major program instrument used by the CCC to support the price of grain, cotton, peanuts, and tobacco over the years has been the non-recourse loan program. The non-recourse loan program has the following features:

By pledging a quantity of commodity as collateral, the farmer obtains a loan from the CCC at an interest rate that is generally at or below the cost of money paid by the federal treasury in the money market.

The loans are made a fixed rate per unit of the commodity. This rate is referred to as the "loan rate".

Like any commercial loan, the farmer is responsible for the cost of storage.

Loans made **without recourse**, meaning the farmer-borrower may elect to either repay the loan within a specified period and regain control of the collateral commodity or default on the loan. If the borrower defaults, ownership of the commodity passes to the CCC, fully satisfying the loan obligation, including the accumulated interest, regardless of the price of the commodity in the market. It is this nonrecourse feature that makes a CCC loan distinctly different from a normal commercial loan.

Contract

Production Contract Arrangements:

A production contract is an agreement (oral or written) between a firm or agent and a producer to purchase a commodity using some type of predetermined pricing arrangement. Usually, the contract is established at the beginning of the production cycle for a given number of acres or number of animals or birds. Normally, the contractor agrees to take all of the commodity produced (under the agreement or contract) at the established price with adjustments for quality or other factors. The contractor may or may not furnish or share some of the production inputs or services such as harvesting and hauling or broiler chicks and feed.

Marketing Contracts:

Marketing contracts are agreements between a producer and a firm or agent to market or purchase a commodity usually for delivery or payment at some future time. The buyer does not control the production of the commodity. The major reason for a marketing contract is to establish a formal agreement when delivery and payment are made at different times. This allows the buyer to take control of the commodity before the final price or payment is made.

Commodities marketed through cooperatives are to be excluded from Section P, Item 12.

Cooperative — A voluntarily organized association controlled by its members or patrons. Frequently the word "cooperative" is part of the association's name.

CRP — Conservation Reserve Program established by the government in 1985 to take up to 45 million acres of land prone to erosion out of production. It pays farmers an average of $48 an acre for 10 years if they agree to plant the land with grass or some non-crop cover. The government pays half the costs of two grass seedings. The payment limit for the reserve program is $50,000 per year per farmer, which does not include the additional $50,000 he can get in deficiency payments.

Corporation — A corporation is a legal form of organization separate from its owners (shareholders). It is created (incorporated) under the laws of the State. Corporations may include both large companies and family farms.

Deficiency Payment — Government payment made to farmers who participate in feed grain, wheat, rice, or cotton programs; payment rate is per bushel, pound, or hundred-weight, based on the difference between a target price and the market price or the loan rate, whichever is higher.

Dwelling

Any occupied house, apartment, mobile home, trailer, or other housing accommodation; also vacant houses.

Expenditure

The expense incurred by purchasing a commodity or service, including:

a. Cost of the item
b. Sales tax
c. Excise tax
d. Shipment or delivery charges
e. Finance charges
f. Installation charges

Expenditures - Cash Accounting Method

Farm expenditures may be kept on a cash method. The following table indicates given condition of payment and delivery and the appropriate action to take for the cash method of record keeping.

1987 Payment	1987 Delivery	Action
Full	Full	Include Total Cost
Full	Partial	Include Total Cost
Full	None	Include Total Cost 1/
Partial	Full	Include 1987 Payment
Partial	Partial	Include 1987 Payment
Partial	None	Include 1987 Payment 1/
None	Full	Exclude Total Cost
None	Partial	Exclude Total Cost
None	None	Exclude Total Cost

1/ The 1987 payments would not be tax deductible for the 1987 tax year according to IRS interpretation. In the cash method of farm accounting, the payment is recorded in the calender year in which it was made, regardless of when delivery was made or scheduled to be made. In most cash method operations, delivery is also taken at time of payment. Include in the FCRS the amount paid during 1987.

Expenditures Accrual Method - Usually, corporations engaged in farming use the accrual accounting method. However, this rule does not apply to:

1. S Corporations (formerly Subchapter S Corporations) or;

2. Corporations in which 50% of the total combined voting power of all classes of stock entitled to vote and at least 50% of the total number of shares of all other classes of stock of the corporation are owned by members of the same family; or

3. Corporations with gross receipts less than $1,000,000 for each tax year since 1975; or

4. Corporations whose trade or business is operating a nursery or sod farm or raising or harvesting trees, other than fruit and nut trees.

Under the accrual system the farm business expenses are deductible in the tax year in which the operation became liable for them, whether paid or not. The following table outlines the action for accrual accounting methods.

1987 Payment	1987 Delivery	Action
Full	Full	Include Total Cost
Full	Partial	Include Cost of Portion Delivered
Full	None	Exclude Total Cost
Partial	Full	Include Total Cost
Partial	Partial	Include Cost of Portion Delivered
Partial	None	Exclude Total Cost
None	Full	Include Total Cost
None	Partial	Include Cost of Portion Delivered
None	None	Exclude Total Cost

Farm

A farm consists of land under one land operating arrangement which sold or could have sold $1,000 or more of agricultural products during 1987.

OL/NOL DETERMINATION CATEGORIES

(1) Individually operated land:

A land operating arrangement in which one person is solely responsible for making the day-to-day decisions. An incorporated family farm should be considered as "Individually Operated" when only one family member makes all day-to-day decisions even though a legal partnership involving spouse, sons, daughters, etc. exists.

(2) Partnership or Joint Land Arrangement:

An association of two or more persons who contribute some combination of land, labor, capital, equipment and materials to carry on a land operating arrangement. Each person shares in profits or losses, but not necessarily on an equal basis.

When parent-child, family partnerships (including family farms) or "silent partner" arrangements are encountered, you must determine if a true partnership exists. A partnership must involve land. The farm operator may include spouse, son, daughter, etc., in the arrangement. In situations where a son or daughter is involved in the operation, and no land is involved, then this operation should be considered an individual operation.

Exclude arrangements involving livestock only and no joint operation of land. Also, exclude landlord-tenant, or managed land arrangements.

Whenever an operation is determined to be partnership or joint, it is important that the correct operator be identified. The location of the residence of this tract operator determines whether the tract is to be identified as resident or non-resident.

(3) Managed Land Arrangement:

A land operating arrangement in which day-to-day decisions are made by a person hired by an individual land owner, corporation, institution or cooperative. Careful probing may be necessary to be sure a ranch foreman or farm manager actually has managerial authority to make all the day-to-day decisions in lieu of land owner. The manager's residence determines if the tract is classified "inside" or "outside".

NOTE: Since the FCRS survey focuses on financial data rather than production or inventory data, there are two exceptions to the 3 definitions of land operating arrangements above:

(1) Institutional farms are excluded from the survey.

(2) The requirement that an operation involve land is not absolute. For example, a person who owns cattle that are in a distant feedlot qualifies, even if he has no land.

Type of Proprietorship

These definitions are used in Section CC, Item 6. DO NOT, UNDER ANY CIRCUMSTANCES, CONFUSE THE DEFINITIONS OF TYPE OF PROPRIETORSHIP WITH THE DEFINITIONS USED FOR SCREENING FOR TYPE OF LAND OPERATING ARRANGEMENT.

A **corporation** is defined as a legal entity or artificial person created under the laws of a state to carry on a business. It includes family corporations but not cooperatives.

A **legal partnership** includes arrangements where two or more persons have formally agreed on sharing of contributions (capital and effort), decision-making, liabilities, and the distribution of profits. This usually does not include husband-wife arrangements because they do not usually have a formal agreement. Generally, a legal partnership will file Form 1065 with the IRS.

A syndicate, group, pool, joint venture, or other unincorporated organization that carries on any business, financial operation, or venture is also a partnership for tax purposes, unless it can be classified as a corporation, a trust, or an estate.

A **sole proprietorship** is operated by one person for himself (or herself) or for his family. It includes family operations which are not incorporated or operated as partnerships.

A **cooperative** is an arrangement where individuals pool all their resources and share in all the profits. This is a rare type of proprietorship. Examples are certain organizations among the Amish. Members of the Latter Day Saints sometimes form cooperative farming arrangements.

Landlord

Landlords are the owners of land and/or buildings which they rent to another person for cash, a portion of the crop or livestock, other proceeds, or rent free.

Loan Rate

The price per unit (bushel, pound, or hundredweight) at which the government will provide loans to farmers to enable them to hold their crops for later sale.

Operator

The operator is the person responsible for all or most of the day-to-day decisions for the tract and total land operated.

The operator could be the owner, hired manager, cash tenant, share tenant or a partner. If a person who lives inside a segment operates farmland as a hired manager or partner and also operates land individually on a separate farm, these two different operating arrangements must be assigned separate tract codes and the person is considered to be a resident farm operator on each tract. When land is rented to others or worked by others on shares, the tenant or renter is considered the tract operator.

Parity Price

Parity price is defined as that price which today gives a unit of the commodity the same purchasing power as it had in 1910-1914.

Questionnaire

The survey questionnaires used to record expenditure information for all qualified farm operations. There are six versions of the questionnaire: (1) expenditure (white); (2) corn (blue); (3) cotton (pink); (4) cattle on feed (yellow); (5) peanuts (buff); (6) barley (green) and tobacco (salmon).

PIK Certificate

As part of the current farm program, certain producers received acreage and paid diversion payments, advance deficiency payments, and some other payments in the form of a commodity certificate. The commodity certificates will be "generic" -- except for the cotton certificates -- they will not be commodity specific. The certificates may be

redeemed by producers for any regular, special, or farmer-owned reserve loan commodity (grains under loan), or by commercial certificate holders for any CCC-owned commodity. A producer may sell the certificate to another producer who may use it to redeem his commodity loans or to a commercial entity for redemption in CCC-commodities. Co-op members may also designate an approved co-op to receive their commodity certificates.

The quantity of the collateral commodity that can be redeemed with commodity certificates will depend on the per-unit value announced by CCC on the day the certificate is presented for redemption.

Resident Tract — An area of land within the segment boundaries, under one type of land operating arrangement, and which contains an occupied dwelling.

Resident Tract Record — Segment worksheet used to record each resident tract within the segment and screen the resident for qualification as a Resident Farm Operator. The segment Resident Tract Records are color coded similar to the versions of the questionnaires, i.e. the expenditure is white, the barley is green, and the peanuts is buff.

RFO — Resident Farm Operator - the operator of a farm whose residence is located within the boundaries of an area frame segment. A questionnaire should be completed for all resident farm operators unless otherwise instructed by the State office.

Sample — A sample is defined as: a set of elements drawn from a population in order to estimate the characteristics of that population.

Sampling Terminology

(1) Frame - A population, universe, group or list of all possible units which meet a specified criteria.

(2) Area Frame - All land area in a given State.

(3) List Frame - A specific list of names in a given State. The name may be an individual, manager, farm or ranch, corporation, institution, etc.

(4) Overlap (OL) - Term used for those tract operators in the area frame sample who had a chance of list selection for a particular survey sample.

(5) Nonoverlap (NOL) - Term used for those tract operators in the area frame sample who did not have a chance of list selection for a particular survey sample.

Sampling Methods

The FCRS uses what is called a "multiple-frame" sampling technique, that is, samples that are selected from more than one "frame". The FCRS uses two frames, a list frame and an area frame.

(1) A list of farms is developed for each State and classified into strata according to items of interest. Then a stratified random sample of farms is selected. Data from the selected sample, when expanded, provides an estimate of the total for farms on the list.

(2) To measure the amount of list incompleteness an area sample is used. Each resident operator who currently has an agricultural operation inside a selected segment boundary is matched against the list. An operator in a sampled area who is not on the list represents other farm or ranch operators not included on the list. These are called nonoverlap tracts. Data reported by these "NOL" operators are expanded to represent all operators not on the list.

Segment

SEGMENTS are land areas identified by a permanently assigned number and outlined in **RED** on county highway maps and aerial photos. Segments generally range in size from one-half square mile to three square miles. Larger segments are found in areas of extensive agriculture, such as range areas in the Western States and heavily wooded areas in Eastern States. Segments are smaller in intensively cultivated areas. Your Enumerator Handbook explains the use of maps and aerial photographs in more detail.

Set-Aside

Set-aside requires that a certain percentage of a farmer's cropland be taken out of production in return for the right to receive farm program benefits. To induce farmers to set aside, program benefits must be sufficient to offset the income that a farmer forgoes from not producing on the set aside acres.

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CHAPTER 3
ENUMERATOR PROCEDURES
1987 FARM COSTS AND RETURNS SURVEY

CHAPTER 3
ENUMERATOR PROCEDURES

General

The following chapter provides an outline of the materials to be used and the basic guidelines for completing your assignments. Chapters 4-14 provide instructions for completing each specific question in the respective questionnaires. Please review your Enumerator Handbook for other instructions on administrative items, interview techniques, agency goals, etc.

Basic Supplies

(a) State highway map.

(b) County highway maps showing segment location.

(c) Aerial photograph with area segment outlined in red, if available.

(d) Masonite board or some type of supporting material to hold photography.

(e) Clipboard to hold questionnaire, or large clip to hold questionnaire to photo board.

(f) Pencils - blue lead for marking on photographs, black lead for recording information on questionnaires and a ball point pen for completing NASDA forms 008 and 009.

(g) Identification Card

(h) Enumerator Handbook

Survey Materials

(1) A return envelope with the State Statistician's address recorded on the front for each area segment. Each one contains a Resident Tract Record Sheet and several questionnaires.

(2) A return envelope containing each assigned List Questionnaire.

(3) Envelopes containing extra Questionnaires and Resident Tract Records. Use these questionnaires as needed. Be sure the correct identification has been entered on any extra questionnaires used and that the correct version was selected.

(4) An envelope containing all necessary administrative forms:

(a) Several copies of NASDA 008 (Time and Mileage Certificate) and NASDA 009.

(b) Several envelopes with the State Statistician's address for sending in NASDA 008 and 009.

(5) Copies of the November FARMLINE for each expected contact.

(6) Farm Costs and Returns Survey Interviewer's Manual.

(7) Adequate copies of a localized news media release.

(8) Alabama and Wisconsin Enumerators have a copy of "individualized" report.

(9) Show Cards (SC)

(10) Work Sheets (WS)

Interviewing

During the course of your enumeration, you will screen area segments for resident farm operators and interview those found. You also will interview

all list operators assigned. As a general rule, start with the area segments.

Before beginning your field enumeration, mark on a State highway map the location of all segments you are to enumerate. Using the mailing address, also mark the location of all assigned list operators. Use this map to plan your daily travel. This will allow you to make the best use of your time and mileage.

It is essential that you try to talk to the operator or the person designated by the operator who will be able to give the "best" information. If that person is not available, follow the call-back procedures given later in this chapter.

The nature of this Survey dictates that the interviewer and respondent work together with the questionnaire. The information required will be more readily available and take less time to obtain if the respondent has farm records available.

In addition, there are two questions near the end of the questionnaire (Section DD-Q5 and Q6) regarding operator use of financial records. Your observation of the type of farm records used by the operator to complete the questionnaire will help in answering these questions.

Call Back Procedures

You should attempt to contact the operator and complete the interview on your first visit, but occasionally you may need to call again. The following instructions should be used as a general guide.

First Visit:

On the first visit you should try to interview the operator. If the operator is not present but is expected shortly,

wait for an interview. If you have other contacts to make, continue with those and return later.

Considering the possible length of the interview, it is advisable to make appointments at the operator's convenience, and keep them.

If the operator will not be available until the survey is over, interview a well-informed person such as the spouse, partner, hired man, etc. Be sure they are knowledgeable about the farm operation.

Second Visit:

When a second visit is required or an appointment has been made, try to interview the operator. If this is not possible, interview a well-informed person. If neither a well-informed person nor the operator is available, you should make observations about the operation. If these observations tell you this is an agricultural operation, try to set up a time when an interview can be completed.

Make every effort to secure the operator's telephone number and to determine where and when contact can be made. If the farm operator or some well-informed person cannot be contacted until after the survey, contact your State Supervisor.

Third and Final Visit:

On a third trip, try to interview the operator or a well-informed person. If neither is available, explain why no interview was completed. Comments regarding whether the tract is farm or non-farm and why the interview was not completed are helpful to the State Supervisor.

Area Segment Enumeration Using the State highway map, county map and aerial photo, drive to the segment.

Upon arriving at the segment boundary, orient your county highway map and photo with ground features. Identify your location on the photo from ground landmarks such as roads, ditches, streams, and buildings.

Select a farmstead or residence located inside the segment for the first interview. Do not depend on observation in locating the residence in relation to the segment boundary. To be sure the respondent is a resident of the segment, show the respondent the photo and identify the location of the operator's residence before continuing the interview. If the dwelling is unoccupied, note on the photo and sketch accordingly. If a new resident should move into the dwelling later during the survey period, do not contact the new resident.

Visit all occupied dwellings and account for each resident tract operator in the Resident Tract Record. If there are no occupied dwellings, the Resident Tract Record will be completed indicating zero resident tracts.

Complete the face page of the Resident Tract Record for each segment. Enclose the Tract Record and all Area Operator Questionnaires in the addressed return envelope.

Residential Areas

Some segments are in highly developed residential areas where there are many occupied dwellings. When a portion of the segment is a "built-up" area with a density of 2 to 4 houses per acre, it should usually be handled by the skip technique.

Using the county highway map, quad map, or aerial photo drive to the segment. At the segment, orient the map with ground features.

Identify the location from landmarks, e.g., roads, buildings, etc. If possible, drive around the segment to identify the boundaries with features shown on the photo.

Check for such things as industrial plants, office buildings, service stations, schools, etc. These are not residences. They are not to be assigned a tract letter on the photo or in the Resident Tract Record.

Divide the built-up portion of the segment into separate tracts. Do not include more than 50 occupied dwellings per tract. Apartment houses and condominiums should be drawn off separately and assigned separate tract codes, except in heavy metro areas were they may be grouped.

Start screening each of the residential tracts for farm operators. Inquire at the first house in the tract to determine if anyone operates a farm, grows crops, or has livestock or poultry. Inquire about other houses close by with which the respondent is familiar with. Then go to the first house that the respondent was not familiar. You should contact at least 1 respondent for every 10 occupied dwellings in the tract. Continue this process until all houses in the tract have been covered.

For each house containing a farm operator, locate the house on the map by circling it in blue and assign a separate tract letter to the residence.

List Sample Enumeration

For the list sample you will have the operator or operation name, the mailing address, the I.D. number and any other related data that the State Office has been able to provide. The mailing address will be the key to locating these operators.

In your list sample kit envelope you will have a questionnaire for each person you are to interview. A sticker with the name and address of the operator will be on the front of the questionnaire. The spelling of the name and the entire address should be verified during the interview. If an individual name was on the label be sure to obtain any farm, ranch or business arrangement names other than that shown on the label.

To locate the people you are to interview, you may need to ask local residents, post offices, county ASCS offices, county agents, etc., and then mark on the State highway or county map as many of the sample list names as you can before starting to interview. The location of the operator's residence should be indicated by a small circle with the I.D. number written beside it. This will help reduce travel expenses and save time. If you are unable to locate an operator, call your supervisor.

If a person on your list operated a farm in 1987, but does not operate a farm at this time, he is still a part of the sample and should be interviewed. Data should be collected for the time (during 1987) that this person operated a farm.

Recording data

Use a black lead pencil.

Record data to the nearest whole number and in the unit required, unless greater precision is requested. Tobacco acreage is always to tenth of an acre.

Follow skip instructions to avoid asking questions needlessly.

Cells requiring code entries are identified. Write notes on margins or blank spaces to describe unusual conditions.

Completing the Questionnaire

Section headings are in large, bold alphabetical letters to facilitate easy identification. The first page of the section is capitalized and additional pages in the same section are in bold lower case letters. Items, or questions, within sections are numeric or a combination of alpha/numeric, i.e. A-1e, Section A, Item 1e.

Enumerator instructions are in italics and enclosed within brackets, such as [go to 16]. Optional wording is not italicized and enclosed in parentheses, i.e. (no crops, or hay, harvested from those acres).

Show cards, SC, 1-6 are color coded and printed on heavy paper. A summary of the possible choices may also appear in the questionnaire.

Worksheets (WS) are provided for use where space or other considerations did not permit their inclusion in the questionnaire.

Space is provided where it may be necessary to make calculations or write notes based upon nearby questions, i.e. between questions 2 and 3 in Section F.

Coding on some questions may be done after the interview, when reviewing your work, i.e. column 3, Section K.

On pages where columns appear frequently the instructions recommend you read down one column then continue on to remaining columns. However, this may vary with each interview.

In some Sections, B for example, the respondent volunteers his harvested acres and a check is entered. Columns (2) - (6) therefore, need only be asked for those checked crops. This style is also used in Section BB, Item 5.

Use supplemental sheets to record enterprise (business) names used for prices paid survey list building.

Supervision

Your supervisor will set up an appointment to meet with you early in the survey. This visit will assist you in getting off to a good start and to review the work you have completed. You will probably be instructed by the supervisor to hold your first assignments until they can be reviewed. You may need to return to the respondent to clear up problems.

Mailing Instructions

Completed segment materials should be mailed to the SSO in the addressed envelope provided. It should contain the following:

(a) Resident Tract Record.

(b) Questionnaire for each resident farm operator.

List questionnaires should be mailed in the envelope provided.

At the end of each day, mail all completed segments or list sample units to the State Office. Use post offices that are either close to your work or that you feel confident with, especially towards the end of the survey.

Keep a record of time and location when mailings are made. This will help the State Supervisor in locating questionnaires and survey materials, if lost.

Special handling

Multiple-State Operations

Large farms or ranches that had cross-state operations or multiple state operations require special attention. Ideally, data would be collected for each farm or ranch unit in each state. However, this is not practical. Information is to be collected in the same manner as the respondent is maintaining records. We need to balance the need for data against the need to maintain good rapport with large operations. Enumerators are instructed to obtain all information possible and the extent of the operation not covered by the completed questionnaire.

Highly Integrated Firms

Special handling procedures must be followed for highly integrated firms that produce agricultural products and handle the marketing steps through selling the production at the retail level. Data should be collected for production of agricultural products and delivery to the first step of processing. For large firms that have operations in other states, contact the state supervisor for special handling instructions. Additional questionnaires may be required for other states, or another state may be required to collect the data for the sample unit.

CHAPTER 4
SCREENING
1987 FARM COSTS AND RETURNS SURVEY

Agricultural Statistics Board
National Agricultural Statistics Service
U.S. Department of Agriculture

1987
FARM COSTS AND RETURNS SURVEY

Form Approved
O.M.B. Number 0535-0125
Expiration Date 10/31/90

State	County	Version	Fr list 1 area 2	Stratum	ID/Segment	Tract
_ _	_ _ _	1	_	_ _	_ _ _ _ _ _ _ _ _ _	_

Completion Codes
1 = Completed
2 = Refusal
3 = Inac., Incompl.
4 = Non-Fm/Screen out

010

011 . _ _ _
List proration factor

Area Labor OL/NOL 012

004
Refusal conversion

"Taking the Pulse of Agriculture"

[enter beginning time]..... 016 _ _ _ _

INTRODUCTION

[Introduce yourself and ask for the operator. Rephrase in your own words.] We are collecting information on farm costs and returns and need your help to make the information as accurate as possible. Your report is confidential, and used only for statistical purposes and economic analysis. Response is voluntary but your cooperation is essential to help us determine the economic health of agriculture.

*[if **LIST** sample (FR = 1), read or show label to respondent to verify the name(s) and spelling, and **ask if the operation did business under any other name**, such as a farm or ranch name. Make corrections or additions on label, if necessary.]*

[go to page 2)

*[If **AREA** sample (FR = 2) enter tract letter]* _____

[Enter code 1 from respective YES answered column in Resident Tract Record]

col. 4	014
cols. 5, 6 or 7.	015

[Fill in the table below, copying as much as possible from the Resident Tract Record.]

operation name _____ [ ] None

resident's name _____
(first) (middle) (last)

address _____
(route or street) (city) (state) (zip)

phone (_____) _____ _____ *[go to page 3]*

LIST AND AREA SCREENING

The face page will contain a sticker if the sampled operator was from the list. Alternately, identification for area operators must be copied to the boxes at the bottom of the questionnaire directly from the Resident Tract Record form. Be certain the segment and tract number agree with the aerial photo and Resident Tract Record. This will serve as the identification for these sampled operators. The shaded boxes in the upper right are to be used by the State office and require no entry by the enumerator.

Record the starting time of the interview (military) at the point the respondent agrees to cooperate on the survey and when you begin to enter responses on the questionnaire.

A sample INTRODUCTION is provided after you have introduced yourself and asked to speak to the operator. This introduction may be used verbatim or rephrased in your own words.

If the sample is from the list, start where the brackets say [If **LIST** sample (FR=1)...]. If the sample is from the area, skip this paragraph and go to where the brackets say [If **AREA** sample (FR=2)...].

LIST OPERATOR SCREENING

General

A list of farm operations in each State was sampled based upon information about their value of production. Agri-business firms and agricultural services were to have been excluded from the sample. However, some names may have been mis-classified. The screening questions are to be used to determine if the selected list name did operate a qualified farm or ranch during 1987.

The names on the label may be an individual, partnership, or operation name which was selected for this survey. Changes in the name's spelling or the address should be recorded on or near the label.

INDIVIDUAL NAME ON LABEL

Following is a list of individual names and situations illustrating the proper steps to following when changes have occurred from what was listed on the label.

	NAME ON LABEL	REPORTED NAME	ENUMERATOR ACTION
1.	Arthur Hayes Rt. 1 Red Oak, Va 22032	Arthur E. Mayes Rt. 1 Red Oak, Va 22032	Major name change Conclude interview.
2.	Albert Coleman Box 234 Pinetop, Va. 46723	Albert G. Coleman Box 234 Pinetop, Va. 46723	Minor name change. Complete interview.
3.	Bob Blalock Rt. 6 Conetone, Al. 34343	Double B Ranch Bob Blalock Rt. 6 Conetone, Al 34343	Add operation name to label. Complete interview.
4.	John Cooley Rt. 2 Bear, Ky. 40145	John Cooley, Oper. Individual & manages GRO-MO-PORK	Interview John Cooley, the individual.
5.	Larry Aycock Rt. 4 Paris, Ky. 46432	Larry & Bob Aycock Rt. 4 Paris, Ky. 46432	Change name on label. Complete interview.

BUSINESS OR PARTNERSHIP NAME ON LABEL

The business or partnership name as provided on the label must qualify as a valid farm operation for 1987 based on value of production, sales, or purchases. Operations or partnerships that operated for part of the calendar year (1987) that meet the minimum would qualify as a farm and should have a completed questionnaire. The reference to sales does not include the retail sale of products by a corporation or business selling agricultural related items like feed, fertilizer, chemicals, equipment, etc. In most cases, the reference to purchases for production of agricultural products does not include items purchased strictly for RESALE, i.e., seed corn, fertilizer, feed, etc.

Firms that actively engage in the raising or production of crops, livestock and other animal specialties, no matter how rare or exotic, are nevertheless a part of the agricultural economy and are a part of the list universe used for this survey. These firms are to be interviewed if selected.

Minor name mis-spellings and address corrections may be permitted against the name on the label, but restrictions to any name change are tight. The operation located must be the same as the name on the label without any MAJOR change, otherwise, the survey procedures in the area segment will create unwanted duplication.

LIST screening

1. During 1987, did this operation produce or sell at least one thousand dollars worth of agricultural products or spend at least one thousand dollars for equipment, feed, seed or other supplies for the purpose of producing agricultural products?

☐ YES - *[go to 4]*

☐ NO

014

		NO	YES	
2a.	During 1987, were any crops, livestock or poultry on the total acres operated?	☐	☐	*[go to 4]*
2b.	During 1987, did this operation sell any agricultural products or receive government payments?	☐	☐	*[go to 4]*
2c.	During 1987, were any crops stored on the total acres operated?	☐	☐	*[go to 4]*

015

3. ***[if 2a-2c are all NO, give this questionnaire completion code 4; go to EE-2]***

4. During 1987, was this land individually operated, a partnership (jointly operated) or managed land? *[landlord-tenant, cash-rent, share crop arrangements should not be considered a partnership.]*

☐ individual - *[go to A]*

☐ managed land - *[if individual name, give this questionnaire completion code 4 and go to EE-2; else, go to A]*

☐ partnership -

4a. How many partners were in this partnership? *[include the operator]* 017

4b. Did all partners share equally in the day-to-day decisions?

☐ YES - *[oldest partner was operator; record name]*

☐ NO - *[partner who made most day-to-day decisions was operator; record name]*

4c. *[Operator's name]* _____ *[go to A]*

The following are examples of name changes and the actions that should be taken.

	NAME ON LABEL	SITUATION	ENUMERATOR ACTION
1.	Tom and Bob Sanders Rt. 2 Jamesville, Ky. 46652	Bob Sanders died July, 1987. Tom operated as individual since then.	Conclude interview. Combination of names no longer operates a farm.
2.	Flying J Ranch John Casey, Mgr. Rt. 1 Elkton, Ky. 45322	John Casey was fired February, 1987, Bob Jackson was hired March, 1987 to replace him. The operation has not changed otherwise.	Complete the John interview for Flying J Ranch. The operation name has not changed. It does not matter that the operation has a new manager.
3.	Jack and Georgia Bay 426 Sycamore Dr. Webster, Ky. 40165	They have added their son to their operation as of January 1987. The operation is now Jack, Georgia, and Ronnie Bay.	Combination of individual names is now different. Conclude interview. Assign completion code 4.
4.	Ridgeview Tony Mills, Mgr. Evergreen, Al.	January 1987 the name changed to Twin Ranch, Inc. Tony Mills is still the manager.	The operation name is different. Conclude interview. Assign completion code 4.

Completion — Upon completion of the interview, enter the completion code on the face page of the questionnaire Codes are--

Code 1 complete	The questionnaire is complete.
Code 2 refusal	The respondent refused to cooperate or grant an interview and it is apparent that the respondent would have qualified as a farm operator. Otherwise, code 4 (nonfarm) should be assigned.

	Code 3 incomplete, inaccessible	The operator was not available throughout the survey period and it is apparent that the respondent would have qualified as a farm operator. Otherwise, code 4 (non-farm) should be assigned.
	Code 4 non-farm	The respondent does not qualify as a farm. Questions 1-2c on page 2 are all NO.

Page 2
Item 1

DURING 1987, DID THIS OPERATION PRODUCE OR SELL AT LEAST ONE THOUSAND DOLLARS WORTH OF AGRICULTURAL PRODUCTS OR SPEND AT LEAST ONE THOUSAND DOLLARS FOR EQUIPMENT, FEED, SEED OR OTHER SUPPLIES FOR THE PURPOSE OF PRODUCING AGRICULTURAL PRODUCTS?

This question screens to see if the resident farmed during 1987. If the respondent answers YES, go to item 4 on this page. If he answers NO, continue screening.

Item 2a

DURING 1987, WERE ANY CROPS, LIVESTOCK OR POULTRY ON THE TOTAL ACRES OPERATED?

Check YES if the operator grew crops (plants for sale) or had cattle, hogs, sheep, poultry, or other livestock on the total land operated. If it is obvious without asking that the operator grew crops or had livestock or poultry--check 2a YES and to item 4.

To qualify as growing a crop, the respondent must have made the decisions on planting, caring for and harvesting the crop.

INCLUDE as crops grown mushrooms, nursery stock, greenhouse crops, etc. EXCLUDE home gardens. Crops received on shares from land rented to someone else in 1987 should not be considered grown by the land owner.

INCLUDE as livestock or poultry all cattle, hogs, sheep, horses, mules, goats, chickens, turkeys, ducks, geese, bees, rabbits, mink or other fur bearing animals, and fish that are raised commercially or used for home consumption. FFA and 4-H livestock projects for cattle, hogs, and sheep must be included. Except for horses, ponies, etc., EXCLUDE animals kept only for pleasure use or as pets.

Livestock dealers or speculators are individuals who own livestock on a short-term basis which have not yet been sold for slaughter. They should be handled the same as any other operator. Slaughter or packinghouses, auction barns, stockyards or order buyers have livestock committed for slaughter. These livestock should be excluded.

Item 2b

DURING 1987, DID THIS OPERATION SELL ANY AGRICULTURAL PRODUCTS OR RECEIVE GOVERNMENT PAYMENTS?

Item 2b is asked to determine if the operator sold any agricultural products or received government payments in 1987. Include sales of crops, livestock, fish and other such products from total land operated, both inside and outside the segment boundaries. Include as government farm payments, any payments received under various conservation programs.

Item 2b should be checked NO when the respondent was a landlord who only sold agricultural products or received government payments from land rented out.

Item 2c

DURING 1987, WERE ANY CROPS STORED ON THE TOTAL ACRES OPERATED?

Check YES if any crops were in storage on the total acres operated regardless of ownership. This question is intended to locate grain that was stored on farms. BE SURE THAT THE RESPONDENT UNDERSTANDS THAT THIS QUESTION REFERS ONLY TO THE LAND HE/SHE OPERATED. It does not refer to acreage that may have been farmed in 1987 but was rented out or sold.

In the event that the respondent was a landlord who rented our cropland but had grain stored in facilities on his/her "farmstead" only and this was all the acreage operated, check YES and continue the interview on a questionnaire.

Item 3

[If 2a-2c are all NO, give this questionnaire completion code 4; go to Section EE-CONCLUSION, Item 2.] If the answer to all questions 2a-2c is NO this respondent does not qualify for an interview. Code this questionnaire with a completion code 4 on the face page and go to Section EE-Conclusion, Item 2.

Item 4

DURING 1987, WAS THIS LAND INDIVIDUALLY OPERATED, A PARTNERSHIP (JOINTLY OPERATED) OR MANAGED LAND? [landlord-tenant, cash-rent, share crop arrangements should not be considered a partnership].
Check the appropriate type of land operating arrangement. Definitions of individual, partnership, and managed land may be found in Chapter 2, Terms and Definitions.

Item 4a

HOW MANY PARTNERS WERE IN THIS PARTNERSHIP? [Include the operator].

When item 4 is checked partnership, you should determine the number of partners (joint operators) and enter the count in the 017 box. Include the operator listed on the face page and the remaining partners.

Items 4b and 4c

DID ALL PARTNERS SHARE EQUALLY IN DAY-TO-DAY DECISIONS?

These questions are asked to verify that the operator has been correctly identified on the face page of the questionnaire. If the operator WAS NOT correctly identified, make corrections on the face page. Then go to Section A-LAND OPERATED, RENT PAID to begin the questionnaire.

National Agricultural Statistics Service

U.S. Department of Agriculture

Form Approved
O M B Number 0535-0125
Expiration Date 10/31/90

State	County	Version	Frame	Stratum	Id / Segment	Tract
_ _	_ _ _	1	2	_ _	00000 _ _ _ _	00

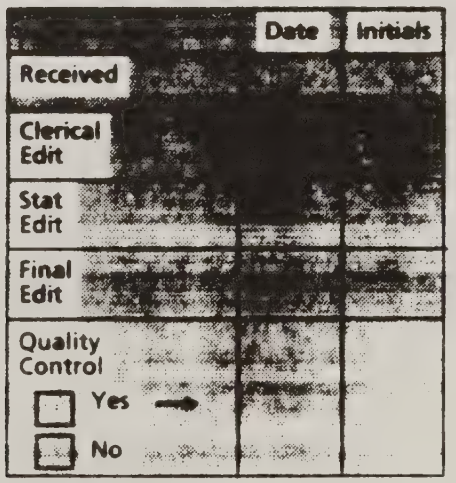
Area Segment
Resident Tract
Record

COUNTY _____

1987
FARM COSTS AND RETURNS SURVEY

Part ___ of ___

1. Total number of questionnaires..... 001
   [This count should equal the number of resident tract numbers assigned in the segment]



Enumerator _____ Date _____

All States Except
AZ CO DE ID MD MT NJ
NM OR PA SC SD UT WY

EXPENDITURE
WHITE

NOTE: Enumerators in Arizona, Colorado, Delaware, Idaho, Maryland, Montana, New Jersey, New Mexico, Oregon, Pennsylvania, South Carolina, South Dakota, Utah and Wyoming will not be using any Area Segment Resident Tract Record forms and should ignore any reference to them in this Chapter. They will, however, have area frame samples.

AREA SEGMENT RESIDENT TRACT RECORD

General

An Area Segment Resident Tract Record must be completed for every segment you are assigned. This questionnaire is used to record the name and address of all residents and contains screening questions to determine if the resident qualifies as a farm operator. The interview will terminate on the Resident Tract Record if the resident does not operate a farm or ranch and no other person living in the household was a farm operator during 1987.

Tracts of land within the segment that do not contain a resident, e.g., farmland, idle land, non-agricultural tracts, etc., are not listed in the Resident Tract Record.

Face Page

The following information will be entered by the State Office in the box in the top half or on attached stickers:

a. A two digit state code.

b. A three digit county code.

c. The version code (expenditure = 1, corn = 2, flue-cured tobacco = 4 or cotton = 6).

d. The frame code, always 2.

e. A two digit stratum code (land use stratum).

f. A four digit segment number with five leading zeros preprinted.

g. Two preprinted zeros for tract number identifying that it is an Area Segment Tract Record.

The stratum number and 4 digit segment number must match the 4 digit number on your map or photo.

If more than eight resident tracts are found within a segment, more than one tract record will be needed to complete the segment. Show the number used, and number each sheet used as part of this total. For example, if three resident tract records are used for a segment, number as follows:

1st - Part 1 of 3
2nd - Part 2 of 3
3rd - Part 3 of 3

Upon completion of a segment, count the questionnaires and record the number in Question 1 on the face page. Enter a dash "-" if no questionnaires for this segment.

Page 2 Columns (1-3)

One line should be completed for each resident in the area segment. Assign a tract letter (A, B, C...etc). Enter the numerical equivalent of the tract letter in the second column if there is a questionnaire for the tract.

The numerical value for each tract letter is list on the left side of Page 2 of the Resident Tract Record. Continue using additional letters and tract record sheets as necessary. When all letters have been used, start using double letters: AA, BB, CC, etc. Tract letters that may be confused with one another such as "N" for "Z", "M" for "W" or "I" for "H" should be underlined when entered on the photograph (N, Z, M, W, I, and H).

RESIDENT TRACT RECORD

	Tract Letter	Tract Number	Name & Address Person in Charge of Tract (include operation name)	During 1987 did this operation produce or sell at least $1,000 worth of agricultural products or spend at least $1,000 for equipment, feed, seed, or other supplies for the purpose of producing agricultural products?
	(1)	(2)	(3)	(4)
A -01 B -02 C -03 D -04 E -05				[ ] YES - [*go to Questionnaire*] [ ] NO
F -06 G -07 H -08 I -09 J -10				[ ] YES - [*go to Questionnaire*] [ ] NO
K -11 L -12 M -13 N -14 O -15				[ ] YES - [*go to Questionnaire*] [ ] NO
P -16 Q -17 R -18 S -19 T -20				[ ] YES - [*go to Questionnaire*] [ ] NO
U -21 V -22 W -23 X -24 Y -25				[ ] YES - [*go to Questionnaire*] [ ] NO
Z -26 AA -27 BB -28 CC -29 DD -30				[ ] YES - [*go to Questionnaire*] [ ] NO
EE -31 FF -32 GG -33 HH -34 II -35 etc				[ ] YES - [*go to Questionnaire*] [ ] NO

Circle the residence on the photo and indicate the tract letter assigned. Record the name and address of the resident. Complete names and address of each farm operator are required in column 3. Record enough information to assist the enumerator or supervisor in follow-up, if needed. For qualifying farm operations, a complete name, address, etc. will also be recorded on the face page of the questionnaire.

Column 4 — DURING 1987, DID THIS OPERATION PRODUCE OR SELL AT LEAST $1,000 WORTH OF AGRICULTURAL PRODUCTS OR SPEND AT LEAST $1,000 FOR EQUIPMENT, FEED, SEED OR OTHER SUPPLIES FOR THE PURPOSE OF PRODUCING AGRICULTURAL PRODUCTS?

This question screens to see if the resident formed during 1987. If the respondent answers YES, begin the interview on the questionnaire. If he answers NO, continue screening.

Column 5 — DURING 1987, WERE ANY CROPS, LIVESTOCK OR POULTRY ON THE TOTAL ACRES OPERATED?

Check YES if the operator grew crops (plants for sale) or had cattle, hogs, sheep, poultry or other livestock on the total land operated. If it is obvious without asking that the operator grew crops or had livestock or poultry--check column 5 YES and continue the interview on a questionnaire.

To qualify as growing a crop, the respondent must have made the decision on planting, caring for and harvesting the crop.

INCLUDE as crops grown mushrooms, nursery stock, greenhouse crops, etc. EXCLUDE home gardens. Crops received on shares from land rented to someone else in 1987 should not be considered grown by the land owner.

INCLUDE as livestock or poultry all cattle, hogs, sheep, horses, mules, goats, chickens, turkeys, ducks, geese, bees, rabbits, mink or other fur bearing animals, and fish that are raised commercially or used for home consumption. FFA and 4-H livestock projects for cattle, hogs, and sheep must be included. Except for horses, ponies, etc., EXCLUDE animals kept only for pleasure use or as pets.

During 1987, were any crops, livestock or poultry on the total acres operated?	During 1987, did this operation sell any agricultural products or receive government payments?	During 1987, were any crops stored on the total acres operated?	During 1988, will this operation produce or sell at least $1,000 worth of agricultural products or spend at least $1,000 for equipment, feed, seed, or other supplies for the purpose of producing agricultural products? *(exclude income received or expenses paid as a landlord)*	Did any other per on living in this household opera a farm or ranch i 1987?
(5)	(6)	(7)	(8)	(9)
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complet new line in Reside t Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complet new line in Reside t Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complet new line in Reside Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complete new line in Reside Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complete new line in Residen Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complete new line in Residen Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complete new line in Residen Tract Record] [ ] NO - [Conclude Interview]
[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES - [go to Questionnaire] [ ] NO ------>	[ ] YES ----------> [ ] NO ---------->	[ ] YES - [Complete new line in Residen Tract Record] [ ] NO - [Conclude

Livestock dealers or speculators are individuals who own livestock on a start-term basis, which have not yet been sold for slaughter. They should be handled the same as any other operator. Slaughter or packinghouses, auction barns, stockyards or order buyers have livestock committed for slaughter. These livestock should be excluded.

Column 6 DURING 1987, DID THIS OPERATION SELL ANY AGRICULTURAL PRODUCTS OR RECEIVE GOVERNMENT PAYMENTS?

Column 6 is asked to determine if the operator sold any agricultural products or received government payments in 1987. Include sales of crops, livestock, fish and other such products from total land operated, both inside and outside the segment boundaries. Include as government farm payments, any payments received under various conservation programs.

Column 6 should be checked NO when the respondent was a landlord who only sold agricultural products or received government payments from land rented out.

Column 7 DURING 1987, WERE ANY CROPS STORED ON THE TOTAL ACRES OPERATED?

Check YES if any crops were in storage on the total acres operated regardless of ownership. This question is intended to locate grain that was stored on farms. BE SURE THAT THE RESPONDENT UNDERSTANDS THAT THIS QUESTION REFERS ONLY TO THE LAND INSIDE AND OUTSIDE THE SEGMENT HE/SHE OPERATED. It does not refer to acreage sold.

In the event that the respondent was a landlord who rented out cropland but had grain stored in facilities on his/her "farmstead" only and this was all the acreage operated, check YES and continue the interview on a questionnaire.

Column 8 — DURING 1988 WILL THIS OPERATION PRODUCE OR SELL AT LEAST $1,000 WORTH OF AGRICULTURAL PRODUCTS OR SPEND AT LEAST $1,000 FOR EQUIPMENT, FEED, SEED OR OTHER SUPPLIES FOR THE PURPOSE OF PRODUCING AGRICULTURAL PRODUCTS? This question screens to see if the resident will farm during 1988. DO NOT COMPLETE A QUESTIONNAIRE FOR THIS RESIDENT. But, make sure the resident's name and address is complete on the Resident Tract Record sheet if he responds positively to this question.

Column 9 — DID ANY OTHER PERSON LIVING IN THIS HOUSEHOLD OPERATE A FARM OR RANCH IN 1987?

If the resident responds NO to columns 8 and 9, he does not qualify as a farm operator. Column 9 is asked to make sure that each person living in the segment who operated a farm will be assigned a separate tract letter. If YES is answered in column 9, assign a tract letter in Column 1 on another line and interview this person beginning with Column 3 on Page 2. If the first person being interviewed qualified as a farm in Column 4, Columns 5, 6, and 7 are skipped. Farm operators will be asked a similar question on the questionnaire.

Agricultural Statistics Board
National Agricultural Statistics Service
U.S. Department of Agriculture

1987
FARM COSTS AND RETURNS SURVEY

Form Approved
O.M.B. Number 0535-0125
Expiration Date 10/31/90

State	County	Version	Fr list 1	Stratum	ID/Segment	Tract
_ _	_ _ _	1	_ area 2	_ _	_ _ _ _ _ _ _ _ _ _	_ _

Completion Codes
1 = Completed
2 = Refusal
3 = Inac., Incompl.
4 = Non-Fm/Screen out

010

List proration factor 011 . _ _ _ _

Area Labor OL/NOL 012

Refusal conversion 004

"Taking the Pulse of Agriculture"

[enter beginning time]..... 016 _ _ _ _

INTRODUCTION

[Introduce yourself and ask for the operator. Rephrase in your own words.] We are collecting information on farm costs and returns and need your help to make the information as accurate as possible. Your report is confidential, and used only for statistical purposes and economic analysis. Response is voluntary but your cooperation is essential to help us determine the economic health of agriculture.

*[if **LIST** sample (FR = 1), read or show label to respondent to verify the name(s) and spelling, and **ask if the operation did business under any other name**, such as a farm or ranch name. Make corrections or additions on label, if necessary.]*

[go to page 2)

*[If **AREA** sample (FR = 2) enter tract letter]* _____

[Enter code 1 from respective YES answered column in Resident Tract Record]

col. 4.....	014
cols. 5, 6 or 7.	015

[Fill in the table below, copying as much as possible from the Resident Tract Record.]

operation name _____ [ ] None

resident's name _____
(first) (middle) (last)

address _____
(route or street) (city) (state) (zip)

phone (_____) _____ _____ *[go to page 3]*

AREA OPERATOR SCREENING

General

All occupied dwellings within the area segment will be screened on the Resident Tract Record. If the resident qualifies as a farm operator, continue with a questionnaire the same color as the Resident Tract Record used.

Face Page

Enter the tract letter where indicated. Enter a 1 in item code 014 if the answer to column 4 on the Resident Tract Record was a YES. Enter a 1 in item code 015 if the answer to either columns 5, 6, or 7 on the Resident Tract record was a YES. Either item code 014 or 015 will be answered for each tract but NOT BOTH.

Obtain the name of the operation, and the (resident) operator's name and full address. It is important that this information be accurate and clearly written; it will be checked against a list of farm operator's names at the State office. If the operation does not have a name, check "NONE". If the operation is managed land without a farm name, enter the owner's name as the name of the operation, with the word "OWNER" following. Enter the telephone number of the operator. You may discover later that you are missing data and need to telephone the operator.

Completion Codes

Upon completion of the interview, enter the completion code on the face page of the questionnaire. Codes are--

Code 1 complete	The questionnaire is complete.
Code 2 refusal	The respondent refused to cooperate or grant an interview and it is apparent that the respondent would have qualified as a farm operator; otherwise, code 4 (non-farm) should be assigned.
Code 3 incomplete, inaccessible	The operator was not available throughout the survey period. and it is apparent that the respondent would have qualified as a farm operator; otherwise, code 4 (non-farm) should be assigned.

— 3 —

AREA screening

5. During 1987, was this land individually operated, a partnership (jointly operated) or managed land? *[landlord-tenant, cash-rent, share crop arrangements should not be considered a partnership.]*

☐ individual - *[go to A]* ☐ managed land - *[go to A]*

☐ partnership -

5a. How many partners were in this partnership? *[include the operator]* 017

5b. Did all partners share equally in the day-to-day decisions?

☐ YES - *[oldest partner was operator; record name]*

☐ NO - *[partner who made most day-to-day decisions was operator; record name]*

5c. *[Operator's name]* _____

5d. *[Is the operator the resident named on **FACE** page?]*

☐ YES - *[go to A]*

☐ NO - *[Enter completion code 4; go to EE-1]*

Code 4 non-farm	The respondent does not qualify as a farm operator when responding to question 5d on page 3.

Item 5

DURING 1987, WAS THIS LAND INDIVIDUALLY OPERATED, A PARTNERSHIP (JOINTLY OPERATED) OR MANAGED LAND? [landlord-tenant, cash-rent, share crop arrangements should not be considered a partnership].

Check the appropriate type of land operating arrangement. Definitions of individual, partnership and managed land may be found in Chapter 2, Terms and Definitions.

Item 5a

HOW MANY PARTNERS WERE IN THIS PARTNERSHIP [Include the operator].

When item 5 is checked partnership, you should determine the number of partners (joint operators) and enter the count in the 017 box. Include the operator listed on the face page and the remaining partners.

Items 5b and 5c

DID ALL PARTNERS SHARE EQUALLY IN DAY-TO-DAY DECISIONS?

These questions are asked to verify that the operator has been correctly identified on the face page of the questionnaire. Using the operator identified in 5c, determine whether the segment resident is in fact the operator of the partnership. If the answer to 5d is YES, then the partnership interview will continue with this segment resident. A NO response indicates one of the other partners is the operator of the partnership arrangement.

The partner whom you have determined to be the operator must be a resident of the segment and be entered in the Resident Tract Record in another tract for an interview to be conducted for the partnership operation. If the current respondent, is not the operator, enter a completion code 4 for this questionnaire and to Section EE-CONCLUSION, Item 1.

☆U.S. Government Printing Office : 1987 - 201-071/60699

CHAPTER 5
EXPENDITURE QUESTIONNAIRE
1987 FARM COSTS AND RETURNS SURVEY

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION A - LAND OPERATED, RENT PAID

General

Section A is used to determine all the land the respondent operated under the arrangement identified on pages 2 (list samples) 3 (area samples) and the annual rent paid for land rented from others or received for land rented to others. You should report all land that was associated with this operation in 1987 even if some or all of it was no longer a part of the operation on January 1, 1988. This is all the land which made up the operator's total farming or ranching operation. A minimum of 1 acre must be recorded.

INCLUDE:

(1) all acreage owned, plus rented from others minus any land rented to others.

(2) the farmstead, all cropland, woodland, pastureland, wasteland, idle land, and government program land regardless of location, provided the operator made the day-to-day decisions concerning that land. Include land across the State lines if the operator in your state made the day-to-day decisions for the out-of-state land.

(3) land worked by sharecroppers. Sharecropper operations are considered to be a part of the landlord's overall operating unit. Sharecroppers are defined as workers who ONLY furnish their OWN LABOR (and family) for a share of the crop. They do not furnish machinery or any other production inputs.

If the operator farmed at any time during 1987, but quit farming before December 31, 1987, report the operations and sales for that land for the portion of the year it was operated. You would not expect inventory values for livestock, machinery or equipment to be reported. A member of a partnership may also have individually operated land. This is

SECTION A - LAND OPERATED, RENT PAID

considered two different land operating arrangements and the individually operated land would not be included on the partnership questionnaire.

(4) land used by a son or daughter for 4-H or FFA projects when the parent's equipment is used.

A LAND OPERATED, RENT PAID A

1. Now I want to ask about the total acres you operated in 1987 under this land arrangement. Include farmstead, all cropland, woodland, pastureland, wasteland and government program land.

During 1987, how many acres did this operation—		—acres—	—annual rent— — $ —
1a. own?	+	018	
1b. rent from others—			
(1) for cash?	+	019	020
(2) for a share of the crop?	+	021	
(3) free of charge?	+	022	
1c. *[if Western state]* use on an AUM basis? *[PIGA land]*	+	023	024
1d. rent to others?	−	025	026
1e. Total acres operated [1a + 1b + 1c—1d]	=	027	

1f. Then the total acres operated under this arrangement during 1987 were *[read number in 1e]?*

1g. Does this include the farmstead, all cropland, woodland, pastureland, wasteland, and government program land?

☐ YES ☐ NO - *[make corrections]*

1h. *[for each entry in 1b or 1c, ask]*
How much annual cash rent was paid during 1987 for _____?
[enter answers in right-hand column above]

1i. *[for 1d, ask]*
How much annual cash or share rent was received during 1987 for all land rented to someone else? *[enter answer in right-hand column]*

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION A - LAND OPERATED, RENT PAID

Item 1a — Acres Owned

INCLUDE:

(1) land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustee of an undivided estate.

(2) cropland, pasture, orchards, woods, waste, idle and government program land.

(3) land that may be considered nonagricultural, but has possibility that livestock may graze or crops be grown in future years.

EXCLUDE:

(1) separate parcels of nonagricultural land which are permanently withdrawn from agricultural uses. This would include land in subdivisions, commercial buildings, etc.

Item 1b — Acres rented from others

INCLUDE:

Land rented from others (private individuals, partnerships, corporations, Federal, State or local government, Indian or railroad land, etc.) for which the operator:

(1) paid cash rent on a per acre basis.

(2) pays for the land with a share of the crops (either standing or harvested).

(3) uses the land rent free.

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION A - LAND OPERATED, RENT PAID

Often farm or ranch operators exclude the woodland and wasteland parts of acreage rented even though the owner considers the entire farm or ranch rented. This happens because the rent is based on acres of cropland. If the renter had the responsibility of looking for the owner's interest on the woodland and wasteland, this land should also be included as part of acres rented from others.

EXCLUDE:

(1) land used to pasture or graze livestock when payment is on a per head or Animal Unit Month (AUM) basis including public land where the operator has grazing rights, sole use, or year-round use, etc.

(2) land on which the respondent's livestock are being fed under contract (i.e., commercial feedlot).

Item 1c — Acres used on an AUM basis - Western States Only

This item should only be asked in the 11 Western States (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming).

The question requests the number of acres used on an AUM (Animal Unit Month) basis and includes "fee per head" basis. The land area must have been associated with a range grazing area (allotment or unit) which was PUBLIC (BLM, FS, BIA, etc.), INDUSTRIAL (energy, timber, railroads, etc.) or a GRAZING ASSOCIATION (PIGA).

Exclude land used on an AUM basis which was controlled by another private individual or partnership which pastured cattle and other livestock on an AUM basis for this operator.

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION A - LAND OPERATED, RENT PAID

Private land, either owned or rented from others, which was administered on an exchange-of-use basis that was included in the 023 code box must also be include in item 1d, rent to others.

If the respondent does not know the acreage for this item, enter "DK" (Don't Know). If this operation did not use this kind of grazing land in 1987, enter a "dash" to show the question was asked.

Item 1d - Acres rented to others

INCLUDE:

(1) land which this operation owned or rented from someone else that is now rented or subleased to another operator. Be sure this land is also included in 1a and/or 1b.

(2) land rented to others for which the owner received cash, a specified amount of the crop, a share of the crop, or other proceeds.

(3) land owned, but used by another operating unit rent free.

(4) land owned, but managed for a fee or salary by someone else.

EXCLUDE:

(1) land in government programs (PIK - Payment-in-Kind, soil bank and other diverted land).

(2) land worked by sharecroppers on this operating unit.

(3) land used by a son or daughter for 4-H or FFA projects when the parents equipment was used.

SECTION A - LAND OPERATED, RENT PAID

(4) land on which crops were grown under contract, if the land owner furnished machinery or controlled the seeding, growing and harvest of the crop.

(5) land used for pasturing someone else's livestock when payment was made on a per head or AUM basis.

(6) land on which the operator fed livestock under contract for someone else.

Item 1e - Total acres operated.

Sum 1a + 1b + 1c and subtract 1d. This becomes the operator's total farming or ranching operation.

Item 1f - Verify total acres operated.

After totaling the entries (1e), verify with the respondent that this was the total acres in this operation.

Item 1g - Other land.

In case the respondent may have forgotten the farmstead, wasteland and other land, ask him if this was included to be certain we get the total acres operated.

Item 1h - Acres rented from others for cash - cost.

Record the TOTAL ANNUAL amount paid to all landlords for all cash rented land reported in the 019 code box.

Acres used on an AUM basis - costs.

Record the ANNUAL amount paid to all landlords for all AUM rented land reported in the 023 code box.

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION A - LAND OPERATED, RENT PAID

Item 1i - Acres rented to others - cost. Record the ANNUAL cash and/or share rent received during 1987 for all land rented to someone else. A work area is provided at the bottom of the page if the operator has more than one cash or share crop arrangement.

For example, for different cash rental arrangements, you should sum all the individual rents, like so--

	Acres	Times	Rent/Acre	=	Annual Rent
#1	100	times	$25.00	=	$2,500
#2	200	times	$50.00	=	$10,000
		Total annual rent		=	$12,500

If the respondent prefers to list his owned and/or rented land by farms, parcels or tracts, the work space may be used as follows:

	Acres	
Owned	100	- Smith place
	300	- Jones farm
	400	Total owned

— 5 —

B CROP ACREAGES and PRODUCTION B

1. What crops were planted for harvest or harvested during 1987 on acres operated? *[check crop names in col. 1 and fill in cols. 2 through 5 for each crop. Fill in col. 6 if operation has a landlord.)*

(1) crop	(2) — acres — plntd	(3) — acres — hvstd	(4) — PRODUCTION and UTILIZATION — total prod	(5) — PRODUCTION and UTILIZATION — amount used on this operation	(6) — PRODUCTION and UTILIZATION — landlord's amount
☐ BARLEY	028	029 for gr	030 bu	031 bu	032 bu
☐ CORN (FIELD)	033	034 for gr	035 bu	036 bu	037 bu
☐ COTTON	038	039	040 bales		041 bales
☐ HAY, ALL		042	043 tons	044 tons	045 tons
☐ OATS	046	047 for gr	048 bu	049 bu	050 bu
☐ PEANUTS	051	052	053 lbs		054 lbs
☐ RICE	055	056	057 cwt		058 cwt
☐ SORGHUM/MILO	059	060 for gr	061 cwt	062 cwt	063 cwt
☐ SOYBEANS	064	065	066 bu	067 bu	068 bu
☐ SUGAR CROPS *[BEETS AND CANE]*	069	070	071 tons		072 tons
☐ TOBACCO, ALL	073 •__	074 •__	075 lbs		076 lbs
☐ VEGETABLES, ALL	077	078			
☐ WHEAT, ALL	079	080 for gr	081 bu	082 bu	083 bu
☐ OTHER CROPS, ALL	084				

2. *[If "vegetables" or "other crops" reported and had landlord for these crops, ask]* What was the landlord's share of the MARKET VALUE of _____ (the vegetables and/or other crops)? .....dollars — 085

3. How many acres were used only for pasture (no crops, or hay, harvested from those acres)? .....acres — 086

4. Was any acreage withheld from production in 1987 for participation in government programs? *[exclude acreage in summer fallow]*

☐ NO - *[go to 5]* ☐ YES - 4a. How many acres were in—

	— acres —
(1) set-aside or Acreage Reduction Program? *[deficiency or diversion]*	087
(2) 10 year CRP or conservation reserve rental payments?	088
(3) another FEDERAL program?	089
(4) State or local government conservation programs?	090

5. Were any acres in summer fallow excluding set-aside?

☐ NO - *[go to 6]* ☐ YES - 5a. How many acres? ..... — 091

6. Any **other** acreage I haven't recorded, such as woodland, PIGA, roads and wasteland?

☐ NO - *[go to 7]* ☐ YES -6a. How many acres? ..... — 092

7. Total Acres *[1 + 3 + 4a + 5a + 6a] [compare acres with A-1e]* .....

SECTION B - CROP ACREAGES AND PRODUCTION

Item 1

Item 1 is designed to obtain the planted and harvested acreage and production of major crops. Expansions of the harvested acreages will be compared with the official estimates at the regional and national levels to measure the coverage of the survey. Record the acreage of crops planted in the fall of 1986 for harvest in 1987 as well as those crops planted in 1987 for harvest in 1987. Report to the nearest whole acre for all crops except tobacco which is to the nearest one-tenth. Crops are pre-printed as well as the units of production and utilization. If the crop is not pre-printed on the questionnaire, enter acres in Other crops. Production or utilization reported in units other than those pre-printed MUST BE CONVERTED to these units. The following conversion factors should be used:

Crop	Pounds	Per
barley	48	bushel
corn (field)		
ear, husked	70	bushel
shelled	56	bushel
cotton		
bale, gross	500	bale
bale, net	480	bale
oats	32	bushel
peanuts, unshelled		
Virginia	17	bushel
runners, so.east	21	bushel
Spanish		
southeastern	25	bushel
southwestern	25	bushel
rice		
rough	45	bushel
	100	bag
	162	barrel
milled	100	pocket or bag
sorghum/milo	56	bushel
soybeans	60	bushel

SECTION B - CROP ACREAGE AND PRODUCTION

Crop	Pounds	Per
tobacco		
Maryland	775	hogshead
flue-cured	950	hogshead
burley	975	hogshead
dark air-cured	1,150	hogshead
Virginia fire-cured	1,350	hogshead
Kentucky-Tennessee fire-cured	1,500	hogshead
Cigar-leaf		
case	250-365	case
bale	150-175	bale
wheat	60	pounds

Example of conversion:

If rice production was reported as 130 bushels per acre, multiply by the number of harvested acres to get total production in bushels. Then multiply by 45 to convert total production from bushels to pounds. Divide by 100 to report rice production according to the preprinted units, hundred-weight .

$$130 \frac{\text{bu}}{\text{ac}} \text{ (times) } 200 \text{ ac (times) } 45 \frac{\text{lb}}{\text{bu}} \text{ (times) } \frac{\text{cwt}}{100 \text{ lb}} = 11700 \text{ cwt}$$

Example of conversion:

If production of Maryland tobacco was reported as 10 hogshead, multiply by 775 to get production measured in pounds.

If soybean production was reported as 225,000 pounds from 150 acres harvested, divide the quantity produced in pounds by 60 to convert to bushel units. It's not necessary to calculate yield per acre in either pounds or bushels, just convert the total units.

SECTION B - CROP ACREAGE AND PRODUCTION

Col. 2 - Acres planted

Total acres planted is the area of crops planted in 1986 for harvest in 1987 as well as those crops planted in 1987 for harvest in 1987. If the crop was intended for harvest during 1987, but as a result of bad weather it was not harvested until early 1988, it should still be included.

INCLUDE:

(1) acreage planted for any purpose, use or harvest.

(2) acreage planted and replanted to the same crop only once.

(3) acreage planted and later plowed down, hogged off, grazed or abandoned.

(4) volunteer acreage only if the acres will be harvested.

Col. 3 - Acres harvested

Acres for harvest for all purposes should be reported for all crops EXCEPT barley, field corn, oats, sorghum/milo and wheat where it is only for grain. Record the acres of the listed crop for harvest in 1987. The acreage should be equal or less than the acreage of the crop planted.

INCLUDE:

(1) crops harvested in 1987.

(2) the same crop harvested two or more times for the same utilization from the same planting should be reported only once.

SECTION B - CROP ACREAGE AND PRODUCTION

Col. 4 - Total production

Record the TOTAL production for the indicated crop. NOTE the preprinted unit codes and convert any reported production to these units using the conversion factors listed above.

Col. 5 - Amount used on this operation

Record the amount of the total production that the operator has and/or will use on this operation for feed, seed, or as any other input for production. Do not include that portion for human consumption.

Col. 6 - Landlord's amount

Record the amount of the listed crop given to landlord(s) in return for use of the land.

Item 2 landlord's share of the MARKET VALUE of the other crops and/or vegetables.

If any Other crops or vegetables are reported and these crops are grown on rented land, record the MARKET VALUE of the landlord(s) share.

Item 3 Pasture

Land referred to as pasture MUST HAVE BEEN GRAZED in 1987 to be recorded. Woods and woodlands that are grazed or pastured should be recorded in 6a. Include both permanent and cropland pasture. Do not include land cut for hay anytime during 1987 or land pastured after another 1987 crop was harvested.

Item 4 Acreage in government programs

Farm programs subsidize producers of certain commodities by supporting the prices of program commodities and by making direct payments. Benefits of the programs are based on quantities produced with an upper limit on the amount of direct payments a single producer can receive.

SECTION B - CROP ACREAGES AND PRODUCTION

Many of the commodity - specific programs allow farmers to receive loans from the commodity credit corporation (CCC) using grain in storage as loan collateral. CCC loans can be repaid with cash, PIK certificates, or the commodity can be forfeited. The effective support price for program commodities is the CCC loan rate. In practice, loan rates vary by county because of transportation costs.

Deficiency payments are made to farmers who participate in feed grain, wheat, rice, or cotton programs. The payment is based on the difference between a target price and the market price or loan rate, whichever is higher. diversion payments are based on a predetermined rate.

In order to be eligible for CCC loans, deficiency, and diversion payments, farmers enroll their base acreage in and commodity program, also known as Acreage Reduction Programs. Enrollment may require a portion of planted or base acreage to be set-aside or diverted from production during the period of enrollment. Some set-aside acreage may be planted to other crops, hayed, or grazed. The proportions of set-aside required during 1987 were:

27.5% of the wheat base,
35.0% of the rice base,
20.0% of the corn and feed grain base, and
25.0% of the cotton base.

In Item 4, record the number of acres in the different government programs, set-aside, CRP (Conservation Reserve Program), any other Federal program or any State or local conservation program. SUMMER FALLOW INCLUDED IN SET-ASIDE SHOULD BE INCLUDED HERE. Summer Fallow not in set-aside should be included in Item 5. The long-term Conservation Reserve Program (CRP) was instituted in 1986. The program encourages farmers through 10 year contracts with USDA to stop growing crops on highly erodible cropland and plant it to a protective cover of grass or trees. Annual rental

SECTION B - CROP ACREAGES AND PRODUCTION

payments of up to $50,000 per year will be made to farm owners or operators who enter a contract to convert eligible land to permanent vegetative cover. Payment can be made in cash or negotiable PIK (Payment-in-Kind) certificates.

Deficiency payments are government payments made to farmers who participate in feed grain, wheat, rice or cotton programs. The payment rate is per bushel, pound, or hundredweight and is based on the difference between a target price and the higher of either the market price or the loan rate. The loan rate is the price at which the Commodity Credit Corporation (CCC) will provide loans to farmers to enable them to hold their crops for later sale.

Item 5 Summer fallow

Report all cropland that was summer fallowed in 1987. Federal Crop Insurance Corporation (FCIC) defines summer fallow as "seeding land to crops in alternate years under a practice which requires that the seedbed be worked periodically during the growing season of the idle year sufficiently to control weeds and conserve moisture".

Summer fallow is used mostly on a rotation basis in the western states to conserve moisture. Land is left idle for an entire year. To be classified as "summer fallow", No crop should have been planted for harvest during 1987. For example, land on which winter wheat was planted in the fall of 1986 was abandoned, plowed under, grazed out or diverted for program compliance in 1987 and left idle until fall would NOT be considered summer fallow.

Item 6 Woodland, roads and wasteland

Acres in woods, wasteland, farmstead, water, etc., should be recorded here. Woodland, even though grazed or pastured, should be included on this line and not recorded as pasture. Parts of fields taken up by ditches, roads or waste should also be entered here.

SECTION B - CROP ACREAGES AND PRODUCTION

Item 7 — Sum 1 + 3 + 4a + 5a + 6a and enter here.

The total of column 2 (planted acres) plus hay harvested and AUM should be compared with item 1e in Section A to be certain all acreage is accounted for. This acreage may be more than Section A if double cropping is common in your area. Double cropping is defined as two crops harvested from the same field during one calendar year.

Item 8 — Conservation tillage acres

Item 8 is used to screen operations for use of conservation tillage. Conservation tillage incudes no till; reduced, mulch, or minimum till; and ridge or strip till. Modern technology has given farmers and ranchers tillage systems from which to choose, ranging from conventional to minimum tillage to no-tillage. The need to consider various tillage systems rises from economic and conservation concerns. Conservation tillage practices have been recommended, proven and accepted for corn, small grains, soybeans, sorghum/milo, and other crops. In order to measure the use of these practices, questions on tillage practices are being asked. Definitions are as follows:

Conservation tillage - Any tillage and planting system that retains <u>at least 30 percent</u> residue cover on the soil surface <u>after planting</u>. Residue cover may be from pasture, winter cover crop, small grain or previous year row crop.

No-till - The soil is left undisturbed prior to planting. Planting is completed in a narrow seedbed approximately 1-3 inches wide. Weed control is accomplished primarily with herbicides.

SECTION B - CROP ACREAGES AND PRODUCTION

Ridge-till - The soil is left undisturbed prior to planting. Approximately 1/3 of the soil surface is tilled at planting with sweeps or row cleaners. Planting is completed on ridges usually 4-6 inches higher than the row middles. Weed control is accomplished with a combination of herbicides and cultivation. Cultivation is used to rebuild ridges.

Strip-till - The soil is left undisturbed prior to planting. Approximately 1/3 of the soil surface is tilled at planting time. Tillage in the row may consist of a rototiller, in-row chisel, row cleaners, etc. Weed control is accomplished with a combination of herbicides and cultivation.

Minimum, mulch till, and reduced till - The total soil surface is disturbed by tillage prior to planting. Tillage tools such as chisels, field cultivators, discs, sweeps, or blades are used. Weed control is accomplished with a combination of herbicides and cultivation.

Item 8a Residue from previous crop

Using the photos provided, ask the respondent if the land under no till, ridge or strip till, or minimum tillage methods had at least as much residue remaining on the soil surface as the soils in the photos. Three examples are shown. The photo with the corn residue after planting depicts also the situation for sorghum and sugar cane residue. The photo with small grain residue depicts the minimum for wheat, barley, oat, rye, and rice residue. The photo with soybean residue depicts the minimum situation also for dry bean, pea, and lentil crops, peanuts, and cotton.

If the residue remaining on the soil surface after planting is less than depicted in the photos, then the land does <u>not</u> meet the minimum requirement for being under one of the three major categories of conservation tillage.

B crop acreages and production — continued B

8. Were no till, ridge or strip till, or minimum tillage methods used in 1987 on any cropland?

☐ YES - 8a. *[Show photo (SC-6) to respondent]* After planting the 1987 crops, did the residue from the previous crop leave the soil looking *at least* like these pictures? *[At least 30 percent of the soil must have been covered with the previous crop residue.]*

☐ YES - *[go to 9]* ☐ NO - *[go to C]*

☐ NO - *[go to C]*

9. On how many acres was the residue at least as great as in the photos? ..... 093 ac

9a. How many of these *[item 9]* acres were *[ask each column]*

(1) no till?	(2) ridge or strip?	(3) minimum or mulch till or some other method?
094 ac	095 ac	096 ac

9b. *[for each positive answer in 9a. ask]* How many of these acres were—

	(1)	(2)	(3)
(1) on single cropped land?	097 ac	098 ac	099 ac
(2) for the first crop on double cropped land?	100 ac	101 ac	102 ac
(3) for the second crop on double cropped land?	103 ac	104 ac	105 ac

SECTION B - CROP ACREAGES AND PRODUCTION

Item 9 Acres with residue at least as great as photo.

Respondents who screen through Item 8 should be asked how many acres had residue at least as great as in the photo.

Item 9a Acres on no till, ridge or strip, minimum, mulch or something else.

Of those acres in Item 9, ask the respondent how many were no till (column 1), ridge or strip till (column 2), minimum or mulch till or some other method (column 3).

Item 9b Acres on single cropped or double cropped land.

For each column in Item 9a, ask how many acres were on single cropped land, for the first crop on double cropped land, or for the second crop on double cropped land.

C SEEDS and PLANTS C

1. Now I need to know about some of the expenses this operation had in 1987 no matter who incurred the expense, such as landlord(s) or partner(s). Let's start with expenses for seeds and plants.

— $ —

2. How much was spent on seeds and plants, seed cleaning and seed treatments? *[exclude seeds, plants or nursery stock for RESALE]* ..... | 106 |

2a. What percent was for—

(1) field crops (including potatoes) or small grains? *[barley, buckwheat, corn (field), cotton, flax, oats, peanuts, rice, rye, sorghum (for grain), soybeans, sugarbeets, sunflowers, tobacco, wheat]* ..... | 950 | %

(2) legumes including lentils, dry beans and peas, grasses, silage and forage? ..... | 949 | %

(3) other crops, such as fruits, nuts, vegetables, nursery and greenhouse products? ..... | 948 | %

(4) OTHER seed expenses? *[treating, cleaning, bagging, delinting, inoculation, scarification, germination testing, rooting hormones]* ..... | 947 | %

100%

SECTION C - SEEDS AND PLANTS

General

With Section C, begin recording expenses. It should be emphasized that we want the total OPERATION expenses including landlord(s) and partner(s) unless indicated otherwise.

Landlord expenses may be recorded in each section or they may be recorded in Section O. BUT THEY MUST BE INCLUDED to obtain a total expense for the sampled operation. Some questions ask for actual expenses and others ask for percents. EXPENSES should be recorded as accurately as possible for the total. Respondents may need to consult records. Percents may be the respondent's BEST ESTIMATE. Respondents should not spend time calculating percents but can report an estimate.

Item 2

Expenses for seeds and plants

Operations (including landlord(s) and partner(s) share) that had expenses for either the purchase of seeds and plants or seed treatment and cleaning of seeds should have a positive answer here. Value of homegrown seed is not an expanse, but if the homegrown seed was cleaned, the respondent would have an expanse for this item. Seeds, plants or nursery stock for RESALE should be EXCLUDED from this item. If the operator or landlord had no seed expense during 1987 go to Section D.

Item 2a

Record the PERCENT of the item 2 expense for each of the categories listed. They are:

(1) FIELD CROPS AND SMALL GRAINS - Include the purpose cost for these seeds; exclude those purchased for eventual distribution and resale, for example a seed corn dealer.

(2) LEGUMES INCLUDING LENTILS, DRY BEANS AND PEAS, GRASSES, SILAGE AND FORAGE - Purchases of these seeds may occur even with no planted acres recorded in Section B. Legumes include clovers and alfalfa.

SECTION C - SEEDS AND PLANTS

(3) OTHER CROPS, SUCH AS FRUIT, VEGETABLES, NURSERY AND GREENHOUSE PRODUCTS - Record only those purchases for this operation. Commercial production or farm use of fruit and nut trees, grape vines and fruit cane are to be included. Tree seedlings for reforestation and trees or shrubs for windbreaks all qualify as farm expenditures. Purchases for landscaping the farmstead do not qualify as a production expense. Flowers, vegetables, bulbs, nursery crops and foliage plants must be purchased for commercial purposes in order to be recorded. Items purchased for resale must be EXCLUDED.

(4) OTHER SEED EXPENSES - Expenses for cleaning, bagging, delinting, scarification, storage, testing and so on are usually associated with the production and use of homegrown seeds and plants. Expenses for these services are to be included for both homegrown and purchased seeds. Record the expenses for materials required to inoculate or treat seeds or plants. Fertilizer nutrient solutions are to be recorded in Section D, Item 1a.

— 8 —

D CHEMICALS, CUSTOM WORK D

1. What were this operation's total expenses during 1987 for—
[including landlord(s) and partner(s) share and custom expenses]

	— $ —
1a. fertilizers, lime and soil conditioners? *[dry, liquid, gas fertilizers, fertilizer-pesticide mixes, rock phosphates, manure, cottonseed hulls, sludge, gypsum, humus, etc.]*	107
(1) What percent was for lime and soil conditioners ONLY?	946 %
1b. insecticides, herbicides, fungicides, nematicides, defoliants, fumigants and growth regulators excluding livestock chemicals?	108

2. Did this operation have any custom work done during 1987, such as land tillage, planting, or harvesting? *[Custom work is work performed by machines and labor hired as a unit; exclude contract labor.]*

☐ YES ☐ NO - *[go to E]*

2a. Which of these was done?
[Check or write in below and complete appropriate columns for each type]

	— acres —	— $ —
☐ land tillage	945	944
☐ planting	943	942
☐ harvesting of—		
☐ hay, forage, or straw (include mowing, raking, baling, field chopping, hauling, blowing)	941	940
☐ barley, oats, rye, wheat	939	938
☐ corn for grain	937	936
☐ soybeans and sorghum	935	934
☐ cotton	933	932
☐ other crops (such as fruits, vegetables, sugarbeets, potatoes, dry beans, peas, seeds)	931	930

3. Was any other kind of custom work done, such as sawing, corn shelling or butchering?

☐ YES ☐ NO

3a. What was it and how much did it cost? *[list each item and expense. Then total.]*

Item	Cost — $ —
_____	_____
_____	_____
_____	_____
TOTAL	929

SECTION D - CHEMICALS, CUSTOM WORK

General This section covers expenditures for fertilizer, lime and soil conditioners, chemicals and custom work. Include any expenses paid by the landlord(s), partner(s) and any custom expenses. Custom work is work performed by machines and labor hired as a unit and excludes contract labor.

Item 1 It is assumed here that most operations will have some expenses for fertilizers, lime and soil conditioners so no screening question is used. If there are no expenses, enter a dash, "--", in 1a and go to 1b. Include application costs here if custom applied.

Item 1a Fertilizer, lime and soil conditioners expenses.

If fertilizer-pesticide combination were purchased include the cost here. Pre-emergence herbicides are often mixed with fertilizer and sold as one product. Include those here. Trace elements such as zinc, copper and so on are included in this item. Include the total cost of all fertilizer purchased under the Agricultural Conservation Program even though all or part was paid by the government. Include expenditures for lime and all soil conditioners-manure, cottonseed hulls, sludge, gypsum, sulfur, marl, peat and other conditioners. If these were applied under the Agricultural Conservation Program, include the total expense even though all or part was paid by the government.

Item 1a (1) Percent for lime and soil conditioners.

Record what PERCENT of the item 1a expenses was for lime and soil conditioners only. Again, this is a percent and may be the respondent's BEST ESTIMATE.

SECTION D - CHEMICALS, CUSTOM WORK

Item 1b Crop chemicals excluding livestock.

Include pesticides, herbicides, fungicides, defoliants, nematicides, fumigants, growth regulators, and rodenticides. They may be used on crops, pastures, seeds, crop storage buildings or seed beds for the control of all types of weeds, diseases, insects, rodents and other predators. Include the total expense for all sprays, dusts, granules, or other materials. Include application costs here if custom applied. Exclude chemicals used for livestock.

INCLUDE:

(1) Expenses for materials applied to control or prevent the growth of weeds or brush.

(2) Expenses for chemicals to control insects on crops.

(3) Carrier materials such as fuel oil, solvents or wetting agents mixed with pesticides.

(4) All government program pesticides applied to crops or buildings even through all or part was paid by the government.

(5) Materials used for controlling fungi and nematodes.

(6) Materials to accelerate drying or regulate plant growth.

(7) Pesticides used to control rodents, birds and other predators.

SECTION D - CHEMICALS, CUSTOM WORK

Item 2 Screening for custom work.

This item screens for custom work such as land tillage, planting (seeding, drilling and so on) or harvesting (combining, digging, cutting and so on). These three categories serve as prompts but a catchall category is included as item 3 to report any other custom work. The custom work could have been hired by the operator or his landlord(s) on the total acres operated (ref. Section A). Custom work means work performed by machines and labor which were hired as a unit.

Item 2a After receiving a positive answer that some custom work was done, check the appropriate item. Harvesting has a further breakdown by type of crop. Then record the acres and TOTAL expense for the checked items. If an operation was performed a number of times on the same acres, for example, cultivation or haying, include the acres covered each time in the acres column.

For the hay, forage or straw category, all of the operations should be considered as one operation whether they were all performed with one custom hire agreement or with multiple agreements. The acreage should be summed only for 1st crop, 2nd crop, 3rd crop and so on. Do not sum this acreage for mowing plus conditioning plus swathing, plus baling, and so on.

For example:

(1) One hundred acres corn were cultivated twice at $5.00 per acre for a total of $1,000.

(2) One hundred acres of hay were mowed, conditioned, raked and baled for each of the three crops. The cost was $25.00 for each crop. You would calculate--

Acres: 100 X 3 = 300 acres
Expenses: 300 acres X $25.00 = $7,500

SECTION D - CHEMICALS, CUSTOM WORK

Hauling charges should be included if they are a part of the custom charge. Otherwise, they should be reported in Section H - CONTAINERS, TRANSPORTATION, MARKETING, STORAGE, Item 1b, transportation.

EXCLUDE:

(1) Contract labor, land improvement and development including soil conservation work and machine hire for fertilizer or pesticide applications.

(2) Leasing of autos, trucks, tractors or other equipment.

Item 3 Other custom work - screening.

This item is a prompt to remind the respondent of any other custom work, such as sawing, corn shelling or butchering. Obviously, acres are not needed.

Item 3a Other custom work - cost

List any other custom expenses not already recorded. After reviewing the list, you may want to record the reported item in another category. Total the expense(s) and enter the computation in the 929 code box.

— 10 —

E FUEL, FARM and MOTOR SUPPLIES E

1. Next, I'll be asking about supplies and equipment that could have been used for personal (non-farm) use or farm use. We are interested ONLY IN THE FARM SHARE of these expenses. *["FARM SHARE" should be the same as the operator interprets it for tax purposes.]*

	— $ —
What was this operation's TOTAL expenses for fuels and motor oils including those used for drying?	109

2. What percent was for—

		dol/cents per gallon — $ —
2a. diesel fuel?	928 %	927 __ • __ __
2b. gasoline **delivered** in bulk?	926 %	925 __ • __ __
2c. gasoline **purchased off** this operation?	924 %	923 __ • __ __
2d. LP gas?	922 %	
2e. **natural** gas?	921 %	
2f. **other** fuels (such as kerosene, gasohol, coal, wood, fuel oil)?	920 %	
2g. motor oils, grease, transmission and hydraulic fluids?	919 %	
	100%	

3. *[ask for each item answered in 2a-2c]*
What was the average price paid per gallon last year?
[enter answer in right-hand column]

4. What were this operations **FARM SHARE** expenses for—

	— $ —
4a. repairs and parts for motor vehicles, machinery and equipment (such as overhauls, tuneups, tubes, tires, and repair of livestock equipment)?	110
4b. accessories for motor vehicles and machinery (such as radios, CBs, hydraulic cylinders, tractor cabs, air conditioners)?	111
4c. farm shop power equipment (such as attachments and accessories such as drills, welders, grinders, hoists, compressors, saws)?	112
4d. other farm supplies and hand tools (such as baling wire and twine, wrenches, shovels, forks, barrels, bolts, rope, bags)?	113

SECTION E - FUEL, FARM AND MOTOR SUPPLIES

General

This section obtains expenditures for fuels, farm supplies and motor supplies. Some of the items may be used for both non-farm and farm use. You should report only the FARM share. If the same vehicles and machinery were used for custom work or machine hire and on this operation, do not attempt to subtract fuel used for custom work. Income from custom work and machine hire will be reported as farm-related income on page 33 (16a). However, if machinery was used only for custom work so that separate books were kept and income from custom work recorded as from an off-farm business page 37 (4a), then exclude fuel and oil costs for custom work from these items.

Item 1

This item asks for the TOTAL expenses for fuels and motor oils. Include those used for crop drying. This is an expense figure and should be reported as accurately as possible. This expense should be net of Federal Excise fuel tax refund, if claimed.

Item 2

This item asks for the FARM SHARE percent of the listed fuels. The respondent may give his/her best estimate of the percent and need not spend considerable time totaling receipts. The percents must sum to 100%.

INCLUDE:

(1) All fuels used in autos (FARM SHARE only), trucks (FARM SHARE only), tractors, self-propelled machinery, (combines, swathers, etc.), irrigation pumps, elevators, chain saws, and so on.

(2) Fuels for heating farm buildings.

(3) Fuels used to heat a farm office.

(4) Fuels used for drying or curing crops.

SECTION E-FUEL, FARM AND MOTOR SUPPLIES

EXCLUDE:

(1) Petroleum products used as a carrier with pesticide sprays. This should have been included in Section D - CHEMICALS, CUSTOM WORK, Item 1b.

(2) Petroleum products used in motor vehicles for custom hire or non-farm use and in other engines or machines that were used for non-farm purposes.

(3) Fuels used for heating or cooking in the operator's residence.

Item 2a Diesel fuel

Record the total farm share percent purchased in 1987. Diesel fuels are used predominantly in tractors or vehicles which would be 100% farm use, but the respondent may have other diesel engines or motor vehicles. Fuel for tractors used strictly for custom work should be excluded.

Items 2b and 2c Gasoline delivered and purchased off this operation. Gasoline includes all gasoline and used in autos, trucks, pickups, tractors and other motors.

Item 2d and 2e LP and natural gas.

Report all LP (Liquid Petroleum, propane and butane) and natural gas used in internal combustion engines.

Item 2f Other fuels

Fuel oil and kerosene are primarily heating fuels. Quantities purchased for use exclusively in the operator's residence should be excluded in the percent. Other fuels, such as coal and wood, are primarily purchased for heating farm buildings or for drying crops. These should be included. Aviation fuel would also be reported here.

SECTION E - FUEL, FARM AND MOTOR SUPPLIES

Item 2g — Motor oils

Include motor oils, grease, transmission fluid, hydraulic fluids and lubricants purchased for motor vehicles and machinery whether delivered or purchased off the operation.

Item 3 — Average price paid per gallon.

For each percent in item 2, record the average price paid in 1987 per gallon for the item. Space is provided on the following page for any necessary calculations.

Item 4 — Record only the FARM SHARE expense for any of these items.

Item 4a — Repairs and parts

Record the total FARM SHARE expenses for materials, labor, parts and services for repair and upkeep of farm motor vehicles and equipment. Family use expenses may be included if they are combined in the operator's records. Include the services and parts such as overhauls, tuneups, tubes, tires and repair of livestock equipment as well as the following:

(1) Brake adjustment and exhaust system repairs.

(2) Front end alignments, steering adjustments, wheel balancing and replacement of shock absorbers.

(3) Replacement or repair of carburetors, fuel pumps, fuel injector systems, water pumps, electrical system, clutch and transmissions, body work, frame repairs, painting and glass replacement.

(4) Major engine overhauls and minor tune-ups, valve and ring jobs.

SECTION E - FUEL, FARM AND MOTOR SUPPLIES

(5) Replacement parts for all machinery including disk blades, cultivator sweeps and shovels, sickles, guards, and baler parts.

(6) Repair of livestock equipment.

Item 4b Accessories

Accessory equipment includes items purchased in addition to the basic unit. Accessories include hitches, wheel weights (including fluid) mirrors, radios, hydraulic cylinders, tractor cabs, air conditioners and electric sensor systems.

Item 4c Farm shop power equipment

Farm shop power equipment includes all shop equipment requiring fuel or other energy source to operate. Include attachments and accessories, power saws, battery chargers, drills, welders, grinders, hoists, sanders, compressors and chain saws.

Item 4d Other farm supplies and hand tools.

Record miscellaneous equipment and hand tools purchased for farm use. Include baling wire and twine, carpentry, plumbing, hand tools, wrenches, ag bags, pliers, spades, shovels, scoops, forks, fencing tools, fuel tanks, barrels, bolts, nails, rope, chain, polyethylene film, canvas, welding rods, oxygen and acetylene gas and other supplies and accessories not included elsewhere. Also include similar items which are generally reusable and are considered equipment or tools. Repair of items is also included. Other items would include mechanic's tools, ladders, jacks, hoists, winches, manually operated grinders, scales, tarpaulins, extension cords, axes, picks and bolt cutters.

F LABOR and WAGES F

1. How many HOURS PER WEEK did you (the operator) average working on this operation during each month of 1987 with or without pay?

	(1) OPERATOR — hours per week —		(2)		(3) ALL OTHER UNPAID Workers — hours per week —		(4)	
Jan.	114	July	115		Jan.	116	July	117
Feb.	118	Aug.	119		Feb.	120	Aug.	121
March	122	Sept.	123		March	124	Sept.	125
April	126	Oct.	127		April	128	Oct.	129
May	130	Nov.	131		May	132	Nov.	133
June	134	Dec.	135		June	136	Dec.	137

2. Did anyone else, such as a household member, neighbor or partner, do farm or ranch work in 1987 on this operation WITHOUT PAY?

☐ YES - *[complete cols. 3 and 4]* ☐ NO

3. During 1987, did this operation use any contract labor? *[Contract workers are paid by a crew leader, contractor, buyer, processor, cooperative, or other person having an oral or written agreement with a farmer or rancher.]*

☐ YES ☐ NO - *[go to 4]*

— $ —

3a. What were the total costs for this labor?..... 138

SECTION F - LABOR AND WAGES

Item 1 Average hours worked per week operator.

This item asks for the average hours per week for each month of 1987 this operator did farm or ranch work, with or without pay, on this sampled operation. Farm or ranch work should include management, field operations, travel, repairs, and so on.

For Example:

Month	Average Days/Week	X	Average Hours/Day	Hours/Week
Jan. 1987	4	X	8	32

In the 114 code box, 32 would be entered.

Item 2 Average hours worked per week - other workers.

The same information as in Item 1 is required in Item 2 for anyone else, such as another household member, neighbor or, if a partnership, a partner. If during August, 1 brother worked about 10 hours per week and 1 uncle worked about 5 hours per week, enter 15 in code box 121. If someone worked 40 hours total in a month, report 10 hours per week.

Item 3 Screening for contract labor.

Contract workers are paid by a crew leader, contractor buyer, processor, cooperative or other person having an oral or written agreement with a farmer or rancher. If the respondent had any of this labor in 1987, check the yes box. Include workers hired to harvest fruits, vegetables, potatoes and berries and other agricultural work which was preformed on a contract basis by a contractor, a crew leader or a cooperative. Exclude expenses for contract construction or maintenance of buildings and land improvements. These are reported in Section N1 - (FARM RANCH) and LAND IMPROVEMENTS and MAINTENANCE. Include work done by any custom operator hired on contract that does not provide his own machinery.

SECTION F - LABOR AND WAGES

Item 3a Costs of contract labor.

Record the TOTAL costs of contract labor which qualifies based on Item 3.

F labor and wages - continued F

4. During 1987, did this operation have anyone on the payroll to do agricultural work? *[include full-time and part-time workers, paid family members, and hired managers]*

☐ YES - 4a. What was the **peak** number, including paid family members, on the payroll on any one day? 139

☐ NO - *[go to G]*

5. What were the total **cash wages**, including cash bonuses, paid to all workers, excluding contract labor? (Include payments to family members and corporate officers, but exclude wages paid for housework, custom work, and social security on the owner-operator.)..... — $ — 140

6. What percent or how much of the total cash wages *[Item 5]* was paid to—

	— % —	or — $ —
6a. yourself (the operator)?	141	142
6b. other household members?.....	143	144

7. Were there any expenses for fringe benefits (such as insurance, workman's comp, social security taxes)?

☐ YES ☐ NO - *[go to 8]*

— $ —

7a. How much for life or health insurance, pension or retirement plans? 916

7b. How much for social security, workmen's comp., and unemployment compensation? 915

8. Were any **NON-CASH** benefits provided to the paid workers such as meals, housing, fuel, or vehicles for personal use?

☐ YES ☐ NO - *[go to G]*

8a. What was the cash value of the housing or other lodging? 914

8b. What was the cash value of other benefits, such as meals or other food, fuel, vehicles for personal use, utilities, pasture or feed? 913

SECTION F - LABOR AND WAGES

Item 4 Screening for agricultural workers.

Include agricultural workers on the payroll regardless of where they worked. Persons on paid vacation or sick leave should also be included. If the operator also provides an agricultural services under the same name as the face page, include the service workers.

AGRICULTURAL WORK is defined as:

- work done ON this operation in connection with the production of agricultural products, including nursery and greenhouse products and animal specialties such as furs, fish, apiaries, etc.

- work done OFF this operation such as trips to buy feed, deliver products to local market or to handle other farm-related business.

- repairs of farm buildings and machinery when performed along with the types of work specified above.

- bookkeeping by a spouse.

- managing a farm (or ranch) for a cash salary.

- meal preparation for work crews.

NON-AGRICULTURAL WORK is defined as:

- housework, such as cooking and homemaking, by house-hold members performed within the operator's home.

- plumbing, carpentry or mechanical work when the person doing the work derived most income from sources other than agricultural work.

- operating a filling station, store or other such non-agricultural enterprise even though located on the operation.

SECTION F - LABOR AND WAGES

- work involved in training, boarding or renting animals such as horses and dogs. Also, exclude caring for research animals.

- work at a roadside stand unless the operator does not keep a separate set of financial records and produces at least fifty percent of the products sold at the stand.

Item 4a — Peak number of workers.

This item is used to screen operators for the Farm Labor Survey.

Item 5 — Cash wages

Include cash wages, incentives, bonuses and percent of profits paid to workers doing agricultural work on land the respondent operated in 1987. Include the wages paid to family members, corporate officers, salaries of hired managers and EMPLOYEES share of Social Security taxes if withheld from salary. Exclude housework, contract labor or Social Security for the operator if the farm or ranch operation was not incorporated. Operators who had more than 500 work hours of farm labor in any quarter during 1986 are affected by the minimum wage laws. Minimum wage for agricultural workers during 1987 was $3.35 per hour. Include the operator's salary (if any) but exclude all cash sales. Money taken by the operator on a "draw" is to be excluded.

Items 6, 6a and 6b — Cash wages - operator and other household members.

In Item 6 record the percent or actual dollars paid to the operator and other household members. This will allow further analysis into wage rates.

SECTION F - LABOR AND WAGES

Items 7, 7a, and 7b

Cash fringe benefits - as expense to employer.

Agricultural workers who are paid $150 or more in cash wages during the year or who work 20 or more days during the year are subject to Federal Insurance Contribution Act (FICA) taxes. These are known as social security taxes. Employers of such workers must pay a portion of the tax and may withhold the employees portion of taxes from wages. Record only the employer's share in Item 7b.

Agricultural workers are covered under the Federal Unemployment Tax Act (FUTA) if the employers meet the following criteria:

(1) $20,000 or more wages were paid to all agricultural labor in any quarter during 1986 or 1987.

(2) If 10 or more workers were hired on any given day within 20 different weeks of 1986 or 1987.

Items (1) and (2) is the minimum coverage required by Federal Statute. In some states, some employers of agricultural workers may employ fewer than 10 workers and pay less than $20,000 in wages, but still be required to pay a state unemployment tax. This expense should be included here.

Items 8, 8a, and 8b

Cash value - other benefits that were not a cash expense but were still a form of payment.

Heating fuels, transportation, phone, electricity, clothing and furniture should be valued at the cost to the operator. Food produced on the farm and furnished to paid workers should be valued at current local prices. Exclude expenses for family members living at home.

G UTILITIES and BUSINESS EXPENSES G

1. What were this operation's **FARM SHARE** expenses for—
["FARM SHARE" should be the same as the operator interprets it for tax purposes.]

	— $ —
1a. electricity for farm AND home *[if on the operation]* (excluding irrigation)?	912
1b. electricity for IRRIGATION?	145
1c. telephone charges? *[farm share only]*	911
1d. water, **other than for irrigation?**	910
1e. interest and service fees on farm land, buildings, and other real estate debt? *[include operator's dwelling if on operation]*	146
1f. interest and service fees on operating loans? *[include service fee on CCC loan redemption]*	147
1g. registration and license fees for motor vehicles? *[farm share only]*	148
1h. office equipment purchases (such as furniture, computers)?	149
1i. general business expenses such as accounting fees, legal fees, travel, memberships, farm management, soil testing, magazines, office supplies?	150

2. Were any damages paid for loss or injury connected with this operation in 1987 which were not covered by insurance?

☐ YES ☐ NO - *[go to 3]*

2a. How much was it?	151

SECTION G - UTILITIES AND BUSINESS EXPENSES

Item 1 — Utility and business expenses should be FARM SHARE only. The farm share is the percentage the respondent will use to calculate Schedule F income tax deductions. EXCLUDE LANDLORD'S SHARE.

Items 1a and 1b — Electricity

Electricity is split between farm (or ranch) and home and irrigation. Irrigation electricity is usually metered and billed separately. Also, include monthly or annual minimums to maintain service even when irrigation was not being used.

Item 1c — Telephone (farm share only)

Record the total telephone expense which was only for this operation. Include both local and long distance.

Item 1d — Water not for irrigation.

Water expense would not include payment for irrigation which will be included in 3a.

Item 1e — Interest and service fees on land and building.

Include interest on farm business loans and mortgages, land contracts and other loans secured by real estate. Sources of these loans include commercial banks, insurance companies, Federal land banks and individuals. Do not include interest on farm real estate debts for land that was not part of this operation. Exclude interest on the operator's residence if it was not located on the operation.

Item 1f — Interest and service fees on operating loans.

Include finance charges for operating loans, including loans for motor vehicles (farm share), remodeling, machinery, livestock, feed, fertilizer, seed and other items. Do not include payments made on the principal loan amount.

SECTION G - UTILITIES AND BUSINESS EXPENSES

Item 1g — Registration and license fees for motor vehicles.

Record the farm share for all motor vehicle registration and license fees paid by this operation.

Item 1h — Office equipment.

Include all capital purchases of farm office equipment.

Item 1i — General business expenses.

INCLUDE:

(1) fees paid to extension service workers, accountants, and others for keeping farm records.

(2) fees paid for preparing income tax returns.

(3) travel expenses such as lodging, meals, and parking incurred while purchasing or selling commodities for farm association or cooperative business, attending fairs at which the respondent's farm products were exhibited and other farmer ranch business.

(4) Postage and telegrams for farm business.

(5) Expenses for title searches, abstracts, recording deeds and mortgages, court costs and other legal expenses for the land operated as well as fees paid to attorneys in connection with farm or ranch business.

(6) Charges for permits and licenses obtained in 1987 for production and marketing of commodities produced on the land operated.

(7) Fees paid on the basis of sales or production to marketing associations or government agencies (Federal, state or local) for the promotion of sales or other specific purposes.

SECTION G - UTILITIES AND BUSINESS EXPENSES

(8) Registration of purebred animals, charges for sales promotion or advertising.

(9) Farm management expenses including books on crop production and livestock feeding, papers and magazines (Daily Drover Journal, Farm Journal, Farmer/Stockman, and so on), market reports, farm news letters and agricultural bulletins. Report only actual 1987 expenditures. If a subscription was renewed for two years starting in 1987, include the total expense. If a two-year subscription was paid for in 1986, do not include any expense.

(10) Real estate agent's commission and other direct selling or buying expenses.

G utilities and business expenses - continued G

3. What were this operation's **FARM SHARE** expenses for—

	— $ —
3a. **IRRIGATION** water and fees?	152
3b. Federal crop insurance?	909
3c. other crop and livestock insurance?	908
3d. all other insurance, such as the FARM SHARE of motor vehicle, liability and blanket insurance policies?	153
3e. TOTAL real estate and property taxes?	154
(1) What percent was for REAL ESTATE only?	155 %

4. During 1987, did this operation have any expenses for the **renting** and **leasing** of livestock?

☐ YES ☐ NO - *[go to 5]*

	— $ —
4a. How much did it cost?	156

5. Did this operation receive, purchase, sell or redeem any PIK (Payment-in-Kind) certificates in 1987? *[exclude landlord's and/or contractor's shares]*

☐ YES ☐ NO - *[go to H]*

5a. What was the—

(1) face value of certificates on hand January 1, 1987? +	157
(2) face value of certificates received in 1987? *[issued to operation by ASCS]* +	158
(3) face value of certificates purchased in 1987? +	159
(4) TOTAL price paid for certificates purchased in 1987?	160
(5) face value of certificates sold for cash? —	161
(6) TOTAL amount received for certificates sold?	162
(7) face value of certificates used to redeem commodity loans? —	163
(8) face value of certificates disposed of by other methods? —	164
(9) Then the face value of certificates on hand December 31, 1987 was *[(1) + (2) + (3)—(5)—(7)—(8)]*. Is that correct? *[If not, make corrections]*	165

SECTION G - UTILITIES AND BUSINESS EXPENSES

EXCLUDE:

(1) Wages for farm workers who do bookkeeping in addition to their regular work or regularly hired bookkeepers and other clerical workers if hired primarily to keep farm records. (THE SALARY OF THESE PEOPLE WILL BE RECORDED IN SECTION F, LABOR AND WAGES.)

(2) Parcel post or expenses charges for marketing agricultural products. (THIS SHOULD BE RECORDED IN SECTION H - CONTAINERS, TRANSPORTATION, MARKETING, STORAGE.)

(3) Gasoline or vehicle operating expenses. (RECORD IN SECTION E - FUEL, FARM AND MOTOR SUPPLIES).

(4) Taxes paid which were levied for general purposes, fees included with marketing expense and check-off dues (REPORTED IN SECTION H-CONTAINERS, TRANSPORTATION, MARKETING, STORAGE).

Items 2 and 2a — Damages for loss or injury.

Damages not covered by insurance are those expenses paid by the operator to settle claim of liability for which no insurance coverage applied.

Item 3a — Irrigation Costs

Irrigation costs for water and other fees for irrigation should be recorded here.

Items 3b-3d — Insurance and taxes.

If an insurance premium paid during 1987 provided more than one year's coverage, include the total expense. Premiums paid in earlier years that provided coverage for 1987 are not to be included.

SECTION G - UTILITIES AND BUSINESS EXPENSES

Motor vehicle, liability and blanket insurance policies are generally all purpose and cover more than just the farm share. Therefore, it may be necessary to have the operator estimate the actual amount considered the farm share.

Data are available from Federal Crop Insurance for premiums paid, but reliable data are not available for other types of insurance premiums paid. By asking amount of Federal Crop Insurance the respondent paid and other crop insurance, we obtain the ratio of one to the other to obtain another indication of total insurance expenditures. Other crop insurance will include coverage for hay and grain in storage facilities.

Losses to the farm operation due to disasters are not recorded. The costs involved in crop or livestock production are already accounted for in other sections.

Item 3e — Real estate and property taxes.

Include taxes on farm real estate, machines, livestock, autos (farm share) and other property taxes. Report taxes paid in 1987, even if they were levied in another year. Include all partners share of taxes where a partnership is reported.

Item 3e (1) — Percent for real estate only.

Record the percent of Item 3e which was for real estate only.

Items 4 and 4a — Renting or leasing livestock.

Include total expense for the rental or leasing of any livestock by this operation. Rental fees paid for bees and bee hives are included in this item.

SECTION G - UTILITIES AND BUSINESS EXPENSES

Item 5 and 5a

PIK (Payment-in-Kind)

The Food security Act of 1985 authorized certain program payments to be made on a noncash basis. Accordingly, producers earning payments under the acreage reduction and land diversion, conversation reserve, and emergency food programs may receive generic commodity certificates also known as PIK certificates.

An initial holder of a commodity certificate must choose one of the following options:

--Sell or transfer the certificate to another producer or commercial entity,

--Use the certificate to redeem CCC regular commodity, reserve or special producer storage loans, or

--Return the certificate to the issuing county ASCS office for cash.

Subsequent holders of commodity certificates may either:

(1) sell or transfer the commodity certificate,

(2) use the certificate to redeem CCC loans, or

(3) exchange the certificate for commodities from CCC inventory.

All certificate holders have until the expiration date shown on the certificate to sell or transfer their certificates by endorsing them on the back. Producers earning certificates on or after November 17, 1986, may exchange them for a check at their county ASCS offices anytime during the last three months before the certificates expire. Certificates earned before that date could only be exchanged for cash during the business days following a specific date shown on the certificate.

SECTION G - UTILITIES AND BUSINESS EXPENSES

Producers may use certificates to redeem outstanding CCC loans anytime before the expiration date.

When valuing the certificate for loan redemption, the face value of the certificate is converted to a bushel equivalent based on terminal market prices which are adjusted for location. Consequently, whether market prices increase or decrease, the producer receives a quantity of commodity equivalent to local market values.

This item uses a "balance sheet" approach to obtaining information on this operation's participation in PIK. Items (1) asks for the face value of certificates on hand at the first of 1987. To this is added the face value of certificates received (issued by CCC) and purchased in 1987. Items (5), (7) and (8) subtract the face value of the certificates disposed of (sold, redeemed or by some other method) in 1987. The result (9) should be the face value of the certificates on hand at the end of 1987. For a partnership, the certificates are usually issued to the partnership.

H CONTAINERS, TRANSPORTATION, MARKETING, STORAGE H

1. How much was spent on—

	— $ —
1a. marketing containers? *[baskets, boxes, crates, etc.]*	166
1b. transportation to deliver items to this operation, to market or between farms (ranches)? *[Do not record if included previously]*	167

2. How much was spent on marketing or storage charges *[including CCC]* such as drying, cleaning, CHECK-OFFs or deductions, commissions, ginning, inspections, allotment rentals or special handling for—

2a. ALL crops, including fruits, vegetables, flowers and ornamental plants?	907
2b. milk and **OTHER** dairy products?	906
2c. ALL livestock and poultry? *[exclude 2b]*	905

SECTION H - CONTAINERS, TRANSPORTATION, MARKETING, STORAGE

Item 1a — Marketing containers

The containers may have been purchased for planting, growing, harvesting or marketing of any commodity. Include baskets, boxes, crates, etc. Containers are frequently provided by a marketing association or cooperative on a rental or per unit fee basis. Charges for usage or rental fees to a buyer, shipper, or packer are to be included.

Nursery and greenhouse containers may be purchased for nursery production or for sale to consumers. Exclude those purchased for direct resale to consumers. Include only those used in production although they may eventually be resold with the plant.

Item 1b — Transportation

All transportation charges for the operation should be reported here. Include transportation to market as well as transportation between farm or ranch parcels. Many farmers will report the net income for livestock and crops. In Section P - SALES AND INCOME, the gross value of sales will be reported and actual transportation charges should appear here. MILK HAULING CHARGES WILL BE ADDED HERE. Also, include here the expenses for transportation of feed, seed and fertilizer to the operation if not reported in any earlier section.

Items 2a-2c — Marketing and storage charges

Include all marketing and storage expenses here. Storage expenses of all kinds should be reported here. If the commodity was not sold, but later returned to the operation, the expense for storage should be included here. Also, record expenses involved in marketing agricultural products. Expenses for marketing are frequently deducted from the final payment and the operator does not have to issue a payment for the service. Commission fees, storage fees, inspection fees and check-off fees

SECTION H - CONTAINERS, TRANSPORTATION, MARKETING, STORAGE

will be identified on the payment voucher along with the gross the net receipts. BE CERTAIN TO PROBE FOR THOROUGHNESS IN OBTAINING THESE HIDDEN COSTS.

In field crops such as cotton or tobacco, the allotments may be rented or leased from other persons not utilizing their full allotment. These allotment rentals should be considered a payment for the privilege of marketing the crop. Rental of land may or may not be associated with the allotment. Land rental fees should be recorded in Section A.

Perishable products such as fruits and vegetables may require refrigeration or icing during storage or transportation. These expenses should be considered marketing expenses.

When promotion check-off fees are automatically reduced from payments for sale of such commodities as soybeans, hogs or milk the fees is INVOLUNTARILY charged and should be considered a marketing expense. Operations also make voluntary payments for marketing and production programs. These VOLUNTARY payments are to be considered a general farm business expense in Section G - UTILITIES AND BUSINESS EXPENSES, Item 1i.

Milk and other dairy products should be reported in 2b and excluded from 2c, All livestock and poultry.

— 17 —

LIVESTOCK and POULTRY

1. Did this operation have any expenses for livestock feed or grazing, bedding, feed processing, custom feeding, veterinary services or purchases of livestock equipment or supplies?

☐ YES ☐ NO - *[go to 6]*

	— $ —
2. What was the TOTAL expenditure for all purchased feed items, such as grains, hays, forages, mixed or formula feeds, concentrates, supplements, salt and minerals?	168

3. What percent or how much of the total was for—

	— % —	OR — $ —
3a. barley, corn (field), oats, sorghum, wheat?	904	903
3b. hays and forages?	902	901
3c. complete rations and formula feeds?	900	899
3d. protein meals and concentrates?	898	897
3e. supplements?	896	895
3f. all other ingredients, such as salt, minerals, molasses, middlings and pulp?	894	893
	100%	

4. How much was spent for—

	— $ —
4a. custom feeding of livestock (on per head or gain basis)?	892
4b. pasturing or grazing of livestock on private land on a fee per head (AUM) or gain basis? *[if Western state, exclude fees reported in A-1c]*	891
4c. custom processing, grinding or mixing of feed?	890
4d. bedding or litter? *[straw, sawdust, wood chips, corn stalks, spoiled hay, etc.]*	889

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION I - LIVESTOCK AND POULTRY

Item 1 — Purchases of feed, custom feeding, pasturing, custom processing of feed, bedding or litter.

This question screens for livestock expenses such as feed, grinding, custom feeding or grazing, bedding, veterinarian services and purchases of livestock equipment and supplies. Expenditures made by either the operator or his landlord(s) should be included in this Section.

Item 2 — Total expenses for feed items.

Total expenses for feed should include expenditures for all feed grains, hay, forages, mixed or formula feeds, concentrates, supplements, premixes, salt, minerals, animal by-products and all other feed additives and ingredients.

Item 3 — Feed components

Respondents may report individual expenses or as a percent of the total in item 2. The sum 3a through 3f should equal 100 percent.

Item 3a — Barley, corn (field), oats, sorghum, wheat - Report all grains whether whole, rolled, cracked, ground and so on.

Item 3b — Hays and forages - Report all legumes, grassed, mixtures and grains cut and dried for use as animal roughage. Silage and green chop include all crops harvested without drying to be used as animal roughage. Hay cubes, wafers and alfalfa pellets are considered forage.

Item 3c — Complete rations and formula feeds - Include all commercially prepared feeds used for feeding dairy, beef, hogs, sheep, horses, broilers, turkeys and other poultry. These items include only those products that require no additional ingredients before feeding.

SECTION I - LIVESTOCK AND POULTRY

Item 3d — Protein meals and concentrates - Include all single ingredient items consisting of oilseed proteins (soybean, cottonseed, sunflower seed, linseed and so on), animal proteins (fish meal, milk by-products) and grain proteins (gluten, brewers).

livestock and poultry — continued

5. How much was spent for—

		— $ —
5a.	veterinary services or miscellaneous livestock and poultry medical services and supplies? *[include branding, castrating, caponizing, performance testing, AI, breeding fees, etc.]*	169
5b.	livestock and poultry chemicals? *[sprays, dips, dusts, udder cleaners]*	170
5c.	purchases of capital equipment for livestock and poultry placed on a depreciation schedule?	171

6. During 1987, did this operation buy any beef or dairy cattle or calves, hogs, or sheep?

☐ YES ☐ NO - *[go to 8]*

7. What was bought and what was the TOTAL expense for each species? *[Check each species and record total expense.]*

	— $ —
☐ **BEEF** cows, bulls and replacement heifers for the breeding stock	172
☐ **DAIRY** cows, bulls and replacement heifers for the breeding stock	173
☐ calves and all OTHER cattle	174
☐ sows, boars, and replacement gilts for the breeding stock	175
☐ all OTHER hogs and pigs	176
☐ ALL sheep and lambs *[exclude wool]*	177

SECTION I - LIVESTOCK AND POULTRY

Item 3e — Supplements - Also known as multiple ingredients, include feeds that require only the addition of feed grains and roughage to make a complete ration. This supplement feed will also contain micro ingredients.

Item 3f — Other feeds - Include all remaining feed ingredients and additives such as salt, minerals, molasses, bone meal, bran, middling, hominy, citrus pulp and beet pulp.

Item 4a — Custom feeding

Include the expenses paid to another operation for the feeding or livestock on a per head or gain basis. Do not include rental on a per acre basis; this should have been record in Section A - LAND OPERATED, RENT PAID, Item 1.

Item 4b — Pasturing or grazing of livestock on private land.

Include expenses for pasturing or grazing of livestock on PRIVATE land on a fee per head, AUM or gain basis. If you are in a Western state, do not include fees already reported in Section A, item 1c.

Item 4c — Custom feed processing

Custom processing, grinding and mixing of feed expenses are to include only the cost of the machine and services, not the cost of the feed or other ingredients. These are reported in their respective items previously.

Item 4d — Bedding or litter

Expenses for all types of livestock litter or bedding are reported here. This may include straw, sawdust, wood ships, corn stalks or spoiled hay.

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION I - LIVESTOCK AND POULTRY

Item 5a — Veterinary services and supplies

Include all fees paid to a veterinarian for services or supplies. Include all other miscellaneous livestock and poultry medical services and supplies regardless or where they were purchased.

Item 5b — Livestock and poultry chemicals

Include the expenses for all sprays, dips, dusts, udder cleaners and other chemicals purchased for use on livestock.

Item 5c — Livestock equipment

All major livestock or poultry equipment, milkers, feeders, cleaners and so on are grouped here for one total. These items are usually placed on a depreciation schedule. Equipment purchased for personal or pleasure use, such as rodeo equipment, is not a farm or ranch production expense and should be excluded.

Item 6 — Purchases of cattle, hogs or sheep

This item screens for any purchases to be reported in item 7. The respondent should volunteer the species purchased, a check entered and a total obtained at that time or after all species have been checked. Purchases of livestock and poultry during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the purchases. For large integrated farms that do not actually purchase the livestock, but obtain them from the previous phase, obtain an estimate of the value of the livestock moving through the operation.

SECTION I - LIVESTOCK AND POULTRY

Item 7 Beef and dairy cows, calves, hogs, and sheep.

INCLUDE:

(1) Include BEEF animals that are to be used as breeding stock or herd replacement for this operation regardless of age.

(2) Include DAIRY animals that are to be used as breeding stock or herd replacement (milk production) for this operation regardless or age.

(3) Any cattle or calves not purchased for breeding herd replacement or expansion should be reported in CALVES AND ALL OTHER CATTLE. Include purchases of cattle placed in a feedlot there.

(4) Include all GILTS, SOWS AND BOARS purchased for breeding purposes.

(5) IN ALL OTHER HOGS AND PIGS record the purchase expenses of all other hogs and pigs such as feeder pigs and market hogs.

(6) IN SHEEP AND LAMBS record all purchases whether they are to be used for the breeding herd or not.

livestock and poultry — continued

8. During 1987, did this operation buy any poultry?

☐ YES ☐ NO - *[go to 10]*

9. What was purchased and what was the total expense for each species?
[Check each species and record total expense.]

	— $ —
☐ broilers, fryers, and other meat-type chicks.....	178
☐ turkeys poults *[for slaughter and breeding]*.....	179
☐ all OTHER poultry (including layers and started pullets) *[record ducks and game birds below in 10]*.....	180

10. Were any livestock or livestock products such as horses, rabbits, goats, bees, fish, mink, eggs, wool, milk, ducks or game birds purchased? *[may be for resale]*

☐ YES ☐ NO - *[go to 11]*

10a. What was the TOTAL expense?..... 181

11. Did this operation have a contract to custom feed or produce livestock, poultry, or eggs for someone else during 1987?

☐ YES ☐ NO - *[go to J]*

11a. What was the name and address of each contractor?
How many head was it for?

Name of Firm:	Name of Firm:
Name of Owner or Manager: (First) (Middle) (Last)	Name of Owner or Manager: (First) (Middle) (Last)
Address: (Route or Street) (City) (State) (Zip)	Address: (Route or Street) (City) (State) (Zip)
Species:	Species:
Number of Head:	Number of Head:

182	
183	

SECTION I - LIVESTOCK AND POULTRY

Items 8 and 9 — Purchase of poultry

This item screens for any purchases to be reported in item 9. The respondent should volunteer the species purchased, a check entered and a total obtained at the time or after all species have been checked. Purchases of poultry during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the purchases. For large integrated farms that do not actually purchase the poultry, but obtain them from the previous phase, obtain an estimate of the value of the poultry moving through the operation.

Include poultry raised under contract as well as poultry owned by this operation. In most contract arrangement, the contractee does not purchase the birds; however, expenses incurred by the contractor are to be included in the questionnaire. If the operator is unable to report the expenses, determine the number of birds grown under contract in 1987 and explain in notes the services provided.

A BROILER chick is one raised to maturity in 8 to 12 weeks and sold for slaughter. An EGG type chick will be raised to laying age and placed in the laying flock for egg production. A STARTED PULLET is an immature female chick to be used for egg production.

For straight run purposes (about one-half cockerels and one-half pullets) allow the respondent to determine the use of the chickens purchased; otherwise, record them as broiler chicks.

Items 10 and 10a — Other livestock or livestock products

Any other livestock or products not included in items 7 or 9 should be included here. Record the expenses for horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock. Also include the purchases of such things as milk and eggs for the purpose of fulfilling a marketing agreement.

CHAPTER 5
EXPENDITURE QUESTIONNAIRE

SECTION I - LIVESTOCK AND POULTRY

Item 11 — Contract arrangements

This item screens for any contract arrangements to custom feed or produce livestock, poultry or eggs.

Item 11a — Name and address of each contractor

See Chapter 2 - TERMS AND DEFINITIONS for a complete explanation of contract arrangements.

For each contract to produce livestock or poultry, enter the name of the firm, the name of the owner or manager, the address, the species and the number of head in the box shown. In poultry or hog contracts, the farm or ranch operator usually houses and feeds the poultry or hogs until they reach a specified age or weight. The expenses for veterinarian and related services, feed and all other services provided for poultry are to be included in the questionnaire.

If the operator is unable to report these expenses, determine the number of animals raised under contract during 1987, and explain in notes the type and amount of services provided by the contractor. If possible obtain the contractor's phone number so the State office can contact him to obtain the information. This should be done through the State office; otherwise, several enumerators may be contacting the same contractor.

— 20 —

J TRACTORS PURCHASED and EQUIPMENT RENTED J

1. During 1987, were any tractors purchased for farm or ranch use?

☐ YES - *[Complete the following for each tractor]* ☐ NO - *[go to 2]*

	1st tractor	2nd tractor	3rd tractor
1a. What make was it?			
1b. What year model was it?	888 — —	887 — —	886 — —
1c. Was it purchased new (= 1) or used (= 2)? *[enter code]*	885	884	883
1d. What was it's PTO HP?	882	881	880
1e. What did it cost? *[minus trade-in, rebate or discounts]*	879 $	878 $	877 $
1f. How many were there?	876	875	874

2. During 1987, did this operation rent or lease any tractors, autos, trucks, farm or irrigation equipment, or storage structures for farm or ranch work?

☐ YES ☐ NO - *[go to K]*

2a. What were the rental costs *[FARM SHARE]* for—

	— $ —
(1) tractors?	873
(2) autos and trucks?	872
(3) irrigation equipment?	871
(4) farm service and storage structures?	870
(5) any other farm equipment?	860

SECTION J - TRACTORS PURCHASED AND EQUIPMENT RENTAL

General

This section is to record expenses for the purchase of tractors during 1987 for use on this operation. Also in this section expenses are obtained for renting or leasing tractors, autos and trucks, irrigation equipment, service and storage structures and all other farm machinery. Include the operator and landlord(s) share for all items.

Item 1 Tractors purchased - screening

This item screens to see if tractors were purchased for use on this operation excluding garden tractors. Include tractors owned by others but used on this operation, such as a landlord tractor used by a tenant. If no tractors were purchased during 1987 for use on the operation go to item 2.

Landlord's tractors for use on this operation should be included. If tractors are used strictly for custom work and the custom work expense and income are not a part of the operation records, then the expenses would be excluded since they are not part of the operation.

Items 1a through 1d

For respondents that had purchases, record the required information for each purchase. When more than one tractor was purchased and all were the same make they should be recorded as a fleet purchase in one column. If more than three columns are needed, combine similar vehicles in the last column and report them as fleet purchases. Record the make, code the model year, whether purchased new or use and PTO horsepower.

Item 1e Cost

The total cost should include the expense of accessories purchased with the tractor, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees may be included in the purchase price if they were not a separate item on the bill.

SECTION J - TRACTORS PURCHASED AND EQUIPMENT RENTAL

The value received for any vehicle trade-in and/or discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the costs.

If a partnership is established to share the purchase cost, record only the share for which the responding operation is responsible, for example, 1/4, 1/2, and the corresponding dollar amount. For example, two other persons outside of this operation and this operator share 1/3 ´s on a $90,000 purchase. Record 1/3 along the margin and $30,000 in the answer cell.

Item 1f — Number of tractors

Record the number of tractors here. If more than 3 columns are needed, combine similar tractors and report as a fleet purchase.

Items 2 and 2a — Renting or leasing vehicles, irrigation equipment, storage structures.

The FARM SHARE expenditures for vehicles (autos, trucks, tractors and other motor driven vehicles), irrigation equipment, farm service and storage structures and any other farm equipment should be reported on the respective line.

Take the respondent´s word on whether the rental agreement is actually a lease or a conditional sales contract. An agreement is considered a conditional sales contract rather than a lease if any of the following are true:

1. The agreement applies part of each payment toward an equity interest you will receive.

2. You get the right to buy the property after making all the required payments.

3. You must pay, over a short period of time, an amount that is a large part of what you would have to pay to buy the property.

SECTION J - TRACTORS PURCHASED AND EQUIPMENT RENTAL

4. You pay rent that is much more than the current fair rental value of the property.

5. You have an option to buy the property at a price that is small compared with the value of the property at the time you may take advantage of the option.

6. You have an option to buy the property at a price that is small compared with the total amount you are required to pay under the lease.

7. The lease designates some part of the payments as interest or part of the payments are easy to recognize as interest.

K FARM MACHINERY, IMPLEMENTS and EQUIPMENT PURCHASED K

1. In 1987, did this operation purchase any new or used farm equipment, implements or machinery other than tractors?

☐ YES - 1a. What was purchased and how much did it cost? *[Describe each item and enter cost after trade-in, rebate or discount. Code col. 3 later.]*

☐ NO - *[go to L]*

(1) Item Description	(2) *[if not tillage machine]* Was it self propelled?	(3) — $ —
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _
	☐ YES ☐ NO	86 _

	Codes for Col. 3 *Self-Propelled*	*Other*
TILLAGE machinery		1
PLANTING, FERTILIZING and **CHEMICAL** machinery	2	3
HARVESTING machinery	4	5
HAYING machinery	6	7
OTHER motor vehicles, machinery and equipment	8	9

SECTION K - FARM MACHINERY, IMPLEMENTS AND EQUIPMENT PURCHASED

General

Purchases of machinery and implements by this operation or the landlord(s) during 1987 are to be included here. The machinery may be used for custom work or on a hire basis and still be recorded as a farm expenditure. If the machine is STRICTLY used for custom work and the custom work expense and income are not a part of the farm (or ranch) records, then the expenses are not considered a part of this operation and would be excluded. List each purchase and check YES or NO if self-propelled. The coding for column (3) may be done after the interview. Also, include in this section would be purchases of other motor vehicles such as airplanes, ATV's (All Terrain Vehicles), and skidloaders. Similar items may be grouped and one code (1-9) number assigned. Likewise, code numbers may be used more than once.

Col. (1)

Record a brief description of what was purchased in sufficient detail for coding later. The equipment to include in each category is as follows:

TILLAGE machinery - cultivators, disks, harrows, hoes (rotary), plows, scrapers, subsoilers and similar equipment.

PLANTING, FERTILIZING and CHEMICAL machinery-drills (grain), dusters, listers, pesticide, spreaders and similar machinery, planters, sprayers, spreaders and similar equipment.

HARVESTING machinery - combines, cutters, diggers, forage harvesters, pickers, shakers and similar equipment.

HAYING machinery - balers, conditioners, crimpers, crushers, cutters (rotary), loaders, mowers, rakes, shredders, swathers, windrowers and similar equipment.

SECTION K - FARM MACHINERY, IMPLEMENTS AND EQUIPMENT PURCHASED

OTHER motor vehicles, machinery and equipment, airplanes, ATV's, blowers, diggers (posthole), dryers (crop) and equipment, elevators, electric equipment (standby), engines (gasoline), feed grinding and mixing equipment, loaders, motors (electric), skidloaders, silo unloaders, trailers, wagons and any other equipment not included in the preceding four categories.

Item 1a Cost

Record the price paid less any trade-in allowance discounts. Delivery charges and sales tax should be included in the net expense. If the respondent entered a partnership to purchase a machine during 1987, record only the share the respondent owned. Enter the share (1/4, 1/2, etc.) outside the table so the data appears reasonable to the reviewer(s).

If several machines are purchased as a unit without separate prices being charged, have the respondent give an estimated expense for each item. If the respondent is unable to estimate the breakdown, enter the total expenses on the line for the principal machine included in the group. Add a note of explanation.

L VEHICLES PURCHASED L

1. During 1987, were any trucks, pickups, jeeps, carryalls, vans, campers or buses purchased for use by this operation? *[INCLUDE amount paid by landlord(s) and partner(s)]*

☐ *YES - [Complete the following for each vehicle]* ☐ NO - *[go to 2]*

	1st vehicle	2nd vehicle	3rd vehicle
1a. What was it?			
1b. What was its size? *[enter code— less than 3/4T (code = 1), 3/4-2T(= 2), greater than 2T(= 3)]*	859	858	857
1c. What model year was it?	856 — —	855 — —	854 — —
1d. Was it purchased new (= 1) or used (= 2)? *[enter code]*	853	852	851
1e. What did it cost? *[minus trade-in, rebate or discounts]*	850 $	849 $	848 $
1f. What percent was the FARM SHARE?	847 %	846 %	845 %
1g. *[if truck]* Was a bed or box and hydraulic system purchased separately?	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
[if YES] 1h. What did it cost?	844 $	843 $	842 $
1i. How many vehicles were purchased?	841	840	839

SECTION L - VEHICLES PURCHASED

General In this section record the purchases of autos, trucks, pickups, jeeps, carryalls, vans, campers or buses to be used in this operation. Landlord vehicles purchased during 1987 for use on this operation should be included. If the vehicles were purchased STRICTLY for custom work and the custom work expense are not a part of the operation record, these purchases should be excluded.

Item 1 Truck or pickup purchases

This item screens to see if any trucks or pickups were purchased during 1987 for use on this operation. If none were purchased for farm or ranch use, go to item 2 to screen for autos purchased.

This item is to record purchases during 1987 of trucks, pickups and similar vehicles used in the farm or ranch operation. Purchases strictly for personal or pleasure use are to be excluded. When more than one vehicle was purchased and all were the same make they should be record as a fleet purchase in one column. If more than three columns are needed, combine similar vehicles in the last column and report them as a fleet purchase.

Item 1a Enter a brief description of the vehicle purchased.

Item 1b Record the size of the vehicle purchased by the listed codes:

less than three quarter ton	= 1
three quarter to two ton	= 2
over two ton	= 3

Pick-ups are a code 1

Item 1c Record the last two digits of the model year.

Item 1d As if it was purchased new (code = 1) or used (code = 2) and enter the appropriate code.

SECTION L - VEHICLES PURCHASED

Item 1e Cost

The total cost should include the cost of accessories purchased with the vehicle, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees, financing charges and insurance may be included in the purchase price or on a separate item on the bill. Either way, they should be included.

The value received for any vehicle trade-in and/or the discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the cost.

Item 1f Farm share percent

The farm share is an estimate of the percent usage that was for the farm or ranch and related business.

Item 1g If a truck was purchased, ask if the bed or box and hydraulic system was purchased separately.

Item 1h If the answer to item 1g was yes, enter the cost of the bed or box and hydraulic system.

Item 1i Record the number of vehicles included in the column. These vehicles must all have the same characteristics already listed in items 1a-1h.

Item 2 Autos - screening

Item 2 screens to see if any autos were purchased during 1987 for use on this operation. If none were purchased, to SECTION M - BUILDING AND CONSTRUCTION REPAIR. Purchases STRICTLY for personal or pleasure uses are to be excluded.

Item 2a Size of autos purchased

Accept the respondent's answer to the size of the autos purchased in the four categories.

SECTION L - VEHICLES PURCHASED

Item 2b — Cost

The total cost should include the cost of accessories purchased with the auto, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees, financing charges and insurance may or may not be included in the purchase price if they were not a separate item on the bill. Either way, they should be included.

The value received for any auto trade-in and/or the discount or rebate received are to be considered as a cost reduction and taken into consideration when computing cost.

Item 2c — Farm share percent

The farm share is the estimated percent of the total usage that was for this operation.

L vehicles purchased — continued L

2. Were any autos purchased by this operation?

☐ YES ☐ NO - *[go to M]*

2a. How many were— — number —

(1)	sub-compacts?	838
(2)	compacts?	837
(3)	intermediate size?	836
(4)	full-size?	835

2b.	What was the TOTAL cost minus trade-ins, rebates and discounts?	184 $
2c.	What percent of the cost was FARM SHARE?	185 %

— 24 —

M BUILDING CONSTRUCTION and REPAIR M

1. Were any buildings completed or remodeled in 1987 on this operation?
[Include dwellings, farm buildings, storage facilities, sheds, silos and bins.]

☐ YES ☐ NO - *[go to 3]*

1a. How many were completed? 790

2. *[Complete the following columns for each building. Include landlord(s) expenses.]*

	1st Building	2nd Building	3rd Building
2a. What kind of building was it?			
2b. *[enter code from below]*	834	833	832
2c. What did it cost this operation, including all materials, contract labor and other labor?	831 $	830 $	829 $
2d. Was any labor or materials contracted out?	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
[if YES] (1) What did it cost?	828 $	827 $	826 $
2e. Was this a new building?	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
	825	824	823
2f. *[if NEW]* What kinds of materials were used for—			
framing?...code	822	821	820
siding? ....code	819	818	817
roofing? ...code	816	815	814
2g. How many were built (or remodeled)?	813	812	811

codes	
wood	*= 1*
metal	*= 2*
masonry	*= 3*
other	*= 4*
none	*= 5*

Codes for 2b

Machine, implement, or workshop 10
Storage (grain) 11
Other crop (forage, fruit, tobacco) 12
Buildings for—
Beef cattle 13
Dairy cattle 14
Hogs 15
Poultry 16
Multi-purpose 17
Dwellings—
Operator 18
Workers 19
Greenhouse or nursery 20
OTHER 21

SECTION M - BUILDING CONSTRUCTION AND REPAIR

General

This section obtains information about construction, additions, alternations or improvement of farm or ranch buildings that were COMPLETED in 1987. A building was completed if some type of enclosure was available for use in 1987, although additional work may be needed to finish the construction. Codes for this section to be used in Item 2b are at the bottom of the page. Be sure to include the expenditures paid by landlord(s).

Items 1

Record additions, remodeling or new buildings that were completed in 1987, regardless of when construction began. Count each structure only once even though several activities were completed on a particular building. If more than one building of the same kind was completed, count each building separately. Again, completed is defined as a structure available for use, even though it may be completely finished for its final purpose.

For example, a barn was started for sheltering livestock in 1987. It was framed and roofed in such a way that it would provide hay storage. Consider the building as completed in 1987 even though livestock did not use it.
Include major reconstruction of buildings partially or completely destroyed as new construction.

A building addition must enclose and/or cover an area in addition to that enclosed or covered by the existing structure. A lean-to added to a barn would be an addition even though walls were not built. Do not include a concrete floor or a board fence built beside a building as an addition since the floor was not enclosed or covered and the fence was not covered. These expenses would be reported in SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE.

SECTION M - BUILDING CONSTRUCTION AND REPAIR

Item 2 — Building data

For each building included in Item 2, complete items 2a through 2h for each building or group of buildings separately. If more than one activity was completed on a building, record the total expenses for all activities.

Item 2a — Enter the name of the building sufficient to code in 2b.

Item 2b — Code the building listed in item 2a. When coding, consider the most important use of the building. Codes are listed below the table in the questionnaire.

Item 2c — Record the operator's expenses including materials, labor and services. Include only that labor hired especially for this purpose. Do not include the wages of regular farm or ranch help who may have assisted in the construction of the building.

Include the expenses for all materials whether purchased in 1987 or earlier years. For ready-build or prefabricated building, enter the total expense for the building and include expenses for any other materials purchased to complete the job. This would include materials for putting in a foundation or floor. When farm or ranch grown materials were used, expenses for preparing the materials, such as a sawmill's charge, should be included.

If insurance settlements were used to pay for construction, do not deduct the settlement from the cost of construction or repair. Insurance indemnities are considered offsets to premium rather than offsets to the expense of restoring damaged property.

SECTION M - BUILDING CONSTRUCTION AND REPAIR

When more than three columns are needed, use pages from another questionnaire. Write the segment and tract number or LSF ID or the additional pages and attach them to the original questionnaire.

Item 2d — Contract labor

For each building or improvement record the expenses that were paid for under contract agreement including labor and materials.

Item 2e — New building

If this was new construction, continue; however, if the activity was remodeling or an addition to an existing structure, go to Item 2g.

M building construction and repair — continued M

3. Did this operation have any expenses for repairing and maintaining the operator's dwelling or any farm buildings or structures?
[include contract and non-contracted labor and materials; operator's dwelling must be located on the operation]

☐ YES ☐ NO - *[go to N]*

	— $ —
3a. How much did repairs (or maintenance) to the operator's dwelling cost?	186
3b. How much did repairs (or maintenance) to farm buildings cost?	187

SECTION M - BUILDING CONSTRUCTION AND REPAIR

Item 2f — Type of materials

Enter the code (1-5) for the type of material used for framing, siding and roofing of new buildings. The codes are:

wood	= 1
metal	= 2
masonry	= 3
other (than wood, metal, masonry)	= 4
none	= 5

Item 3 — Maintenance and repair

Farm and ranch building maintenance and repairs include work performed to maintain or restore farm and ranch buildings. Expenses incurred by the operator to repair damages which were compensated by insurance are to be recorded. Do not reduce the cost of maintenance and repairs by the amount of insurance settlements. Record the total cost in this Section and insurance settlements will be recorded in Section P - SALES AND INCOME.

Item 3a — Operator's dwelling

Record the cost, if any, to repair, restore, or maintain the operator's dwelling if on the operation.

Item 3b — Farm buildings

Record the cost, if any, to repair, restore or maintain farm or ranch buildings, storage facilities, sheds, silos, bins and similar structures.

N1 FARM (RANCH) and LAND IMPROVEMENTS and MAINTENANCE N1

1. During 1987, did this operation have any expenses for new construction of fences and corrals, soil conservation, drainage or irrigation improvements? *[Include reimbursed and non-reimbursed expenses.]*

☐ YES ☐ NO - *[go to 3]*

2. What were the expenses for new construction for—	New Construction — $ —	Maintenance/ Repair — $ —
2a. fencing?	188	189
2b. SOIL CONSERVATION improvements such as, terraces, water and sediment control basins, grassed waterways, ponds, windbreaks, permanent cover, contouring, grading, filter strips? *[if none, go to 2c]*	810	809
(1) How many acres did this service?	808 ac	807 ac
2c. DRAINAGE improvements? *[ditches, bedding, shaping, subsurface drain tile; if none, go to 2f]*	806	805
2d. How much of the *[2c expenses]* was for improvements on NON-IRRIGATED land?	804	803
(1) How many acres did this service?	802 ac	801 ac
2e. How much of the *[2c expenses]* was for improvements on IRRIGATED land?	800	799
(1) How many acres did this service?	798 ac	797 ac
2f. IRRIGATION improvements or equipment, such as leveling, digging wells or ditches, pumps, motors, sprinklers, pipes or fittings?	796	795
2g. all OTHER farm (ranch) improvements such as corrals, feedlots, feeding floors, trench silos, waste facilities, wells and equipment not for irrigation? *[WESTERN states include capital improvements to grazing land]*	794	793

3. Did this operation have any costs for maintaining or repairing any of these fencing, structures, drainage, conservation or irrigation improvements?

☐ YES - *[Complete right-hand column]* ☐ NO

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

General

This section covers new construction, maintenance and repairs relating to fencing, soil conservation, drainage, irrigation and any other farm or ranch improvements. Separate columns are provided for reporting new construction and maintenance and repairs. Landlord(s) and tenants' expenses, reimbursed and non-reimbursed expenses should all be included.

Land improvements are defined as improvements which alter the land in a PERMANENT fashion. Maintenance and repair expenses on those land improvements and conservation recur annually and are significantly related to the ongoing operation of already existing improvements.

Examples are annually leveling in preparation for planting (item 2f) or the repair of dikes and ponds already in existence (item 2b). New construction expenses frequently include expenses for materials such as large quantities of new tile, or plastic tubing, new culverts, pipe, fencing and associated machinery and labor charges. Examples of maintenance and repair expenses would be leveling in preparation for planting or repair of existing dikes and ponds or small purchases of replacement tile or other materials.

Item 1 Improvement and maintenance - screening

A screening question is provided to determine if any expenses were incurred for NEW construction.

Item 2a Fencing

On many farms and ranches fence construction and repair is a major expenditure. New construction is considered a capital expenditure and must be placed on a depreciation schedule.

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

Item 2b — Soil conservation improvements.

Record the total expenditures from all sources for any (reimbursed or non-reimbursed) expenses for soil conservation improvements such as terraces, water and sediment control basins, grassed waterways, ponds, windbreaks, permanent cover, contouring, grading, filter strips, or anything else.

In the second part of this item, record the TOTAL acres these improvements benefited or serviced not just the acres on which the soil conservation improvements were done.

Item 2c — Drainage improvements

Record the total expenditures for drainage such as ditches, bedding, shaping, subsurface drain tile and any other expenditures to improve drainage.

In the second part of this item, record the TOTAL acres these improvements serviced (or impacted) not just the acres on which the drainage improvements were done.

Items 2d and 2e — Drainage improvements on irrigated and non-irrigated land.

If drainage improvements were done in 1987, items 2d and 2e ask for the expenses on irrigated and non-irrigated land. Again, the second part of each question asks for the acres serviced (or impacted) by each type of practice.

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

Item 2f Irrigation improvements or equipment

Record here any irrigation improvements such leveling or digging wells or ditches. Land leveling involves the removal or irregularities on the land surface by the use of special equipment for the purpose of improving drainage, more uniform planting depths, more effective use of precipitation or irrigation water and greater efficiency in tillage operations. All leveling improvements should be entered here regardless of the intent.

Expenses for irrigation equipment such as pumps, motors, sprinklers, pipes or fittings should also be included.

Item 2g Other farm (ranch) improvements

Include here any other improvements not recorded in 2a-2f. These include construction or repair and maintenance of corrals, feedlots, feeding floors, trench silos, waste facilities, wells and equipment not for irrigation. If enumerating in a Western state, include capital improvements to grazing land.

Item 3 Maintaining or repairing land improvements

This question screens to see if there were any repairs or maintenance costs for any of the items in 2.

N2 DEPRECIATION and OTHER EXPENSES N2

— $ —

1. What was this operation's 1987 depreciation expenses for all capital assets? *[If partnership, include amount paid for partners]* ..... 190 ☐☐☐☐☐

2. Did this operation have any agricultural expenses I have not recorded?

☐ YES ☐ NO - *[go to 0]*

2a. What were they and how much did they cost?
[List each item and expense, then total]

Item	Cost — $ —
_____	☐☐☐☐☐
_____	☐☐☐☐☐
_____	☐☐☐☐☐
TOTAL	191 ☐☐☐☐☐

SECTION N2 - DEPRECIATION AND OTHER EXPENSES

Item 1 Depreciation

Depreciation is an annual allocation of the original cost, of a capital asset. Typically the useful life of an asset is estimated at the date of acquisition. For this survey it is suggested that depreciation amounts be identical to those used for the respondent's income tax return, which may differ from straight line estimates. DO NOT ENTER value of depreciable assets.

Items 2 and 2a Other expenses not recorded elsewhere

This item is a reminder to include agricultural expenses not already recorded. List any expenses the respondent did not report earlier. After reviewing the list, you may want to include the reported item in another category. Most expenses should have been included in another item and an effort made to place them. Total the expense(s) that cannot be included elsewhere and enter them in the 191 code box.

— 28 —

O LANDLORD EXPENSES O

1. *[If cash rent or share rented acres reported—A.1b, continue; else go to P]*

2. What expenses did the landlord(s) pay?
[Check each item and enter total amount.]

	How much? — $ —	Was amount included previously? *[circle code]* YES	NO
☐ seeds and plants *[C-2]*	192	193 1	2
☐ fertilizer, lime, soil conditioners *[D-1a]* and pesticides *[D-1b]*	194	195 1	2
☐ custom work *[D-2a]*	196	197 1	2
☐ fuels and oils *[E-1]*	198	199 1	2
☐ irrigation water and fees *[G-3a]*	200	201 1	2
☐ insurance *[crop, livestock, motor vehicle liability, blanket—G-3b-3d]*	202	203 1	2
☐ real estate and property taxes *[G-3e]*	204	205 1	2
☐ marketing containers *[H-1a]*, transportation *[H-1b]* and storage *[H-2a-2c]*	206	207 1	2
☐ feed *[I-2]*	208	209 1	2
☐ veterinary services and supplies *[I-5a]* livestock chemicals *[I-5b]* and livestock equipment *[I-5c]*	210	211 1	2
☐ purchases of beef or dairy cattle, calves, hogs or sheep *[I-7]*	212	213 1	2
☐ purchases of poultry *[I-9]*	214	215 1	2
☐ purchases of other livestock *[I-10a]*	216	217 1	2
☐ leasing of irrigation equipment *[J-2a(3)]*	218	219 1	2
☐ building construction and repair *[M-2c]*	220	221 1	2
☐ repairing and maintaining operator's dwelling *[M-3a]*	222	223 1	2
☐ NEW construction of farm (ranch) structures or soil conservation improvements *[N1 2a-2c, 2f, 2g]*	224	225 1	2
☐ MAINTENANCE or REPAIR of farm (ranch) structures or soil conservation improvements *[N1 2a-2c, 2f, 2g]*	226	227 1	2
☐ ALL OTHER landlord expenses, excluding interest *[N2 -2a]*	228	229 1	2

3. Did the landlord(s) receive any payments from a Federal, state or local farm program for this operation?

	— $ —
☐ YES - 3a. How much?	230
☐ NO	

SECTION O - LANDLORD EXPENSES

Item 1 — Screening for landlord(s)

This section is only applicable if this operation had a landlord. You may wish to refer to Section A, Item 1b to determine if this was the case.

Item 2 — Categories of expenses

To obtain total expenses for this operation, this section records expenses paid by the landlord(s). They may or may not have been recorded earlier. Since landlord(s) may pay a variety of expenses, check boxes are provided to indicate which of the expenses in the pre-listed categories the landlord(s) paid. The letters and numbers in the brackets indicate the section and item to which the individual expense applies.

After the boxes are checked, ask how much of that expense the landlord(s) paid and enter the answer in the left-hand column. The right-hand column asks if this expense was reported earlier. This will eliminate duplication of landlord expenses and also give a total of expenses paid by the landlord(s).

Items 3 and 3a — Farm program receipts by landlord(s)

Record here any money received by the landlord(s) from a Federal, state or local farm program. This may be from a deficiency, diversion, storage, ARP, CRP, conservation, disaster, PIK or something else.

P SALES and INCOME (excl. landlord's share) P

1. *[if has landlord(s), read]*
Now I am finished with expenses which landlord(s) may pay. Most of the remainder of the questionnaire pertains only to income and liabilities you (the operator) and *[if partnership]* your partner(s) may have.

2. What crops did this operation sell in 1987 and what was the GROSS value received? *[Include crops grown in any year and partner(s) share but exclude the value, if any, of the landlord and/or contractor's shares. Check crop and enter TOTAL amount received in cash sales column.]*

	Total CASH Sales — $ —		Value Placed under CCC Loan during 1987 — $ —
☐ barley, oats, rye, peas, sorghum, dry beans	231	☐	232
☐ corn (field)	233	☐	234
☐ cotton	235	☐	236
☐ flax and sunflowers	237	☐	238
☐ peanuts	239	☐	240
☐ rice	241	☐	242
☐ soybeans	243	☐	244
☐ sugar crops, ALL	245	☐	246
☐ tobacco, ALL	247	☐	248
☐ wheat, ALL	249	☐	250
☐ vegetables (fresh and processing)	251		
☐ citrus fruits	252		
☐ non-citrus fruits and nuts	253		
☐ nursery and greenhouse (incl. mushrooms, sod, bulbs, and flowers)	254		
☐ Other crops (such as potatoes, hay, seeds, popcorn)	255	☐	256

2a. Any other crops? *[enter above]*

3. Did this operation place any crops under CCC loan in 1987?

☐ YES - 3a. Which crops were they and what was the value of that placed under loan?
[check each crop and enter value in right-hand column]

Crops Ref.
257

☐ NO

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

General

The purpose of this section is to determine the sales and income of crops and livestock produced by this operation. The answers provide a basis for estimating gross cash farm income.

DO NOT INCLUDE THE SHARE GIVEN TO A LANDLORD.

Item 1 Transition statement

A transition statement is provided from the landlord expenses section to this section. For those operations not having a landlord, go to item 2.

Item 2 Crop sales

Ask the respondent which he sold in 1987, REGARDLESS OF THE YEAR PRODUCED. Income received from co-ops and other sources in 1987 for crops delivered in previous years should be included. For integrated firms that pass crops on without sales, an estimated value of the crop should be included. However, crops removed under a contract arrangement are to be EXCLUDED here and recorded in 12a (3). Record the GROSS amount received by the operator for the crops sold. Record the crops on the pre-listed lines and combine any other crops on the last line under Other crops.

Item 2a Crops sales - prompt

After the respondent has reported all his crops, ask if there are any others. This serves as a reminder that none were forgotten.

Items 3 CCC loan - screening

This item determines if any crops were placed under CCC loan during 1987. CCC stands for Commodity Credit Corporation and was created in 1933 to help stabilize and support farm prices and income, and to help maintain balanced supplies and the orderly distribution of agricultural commodities.

P sales and income (excl. landlord's share) — continued P

4. During 1987, did this operation repay (not forfeit) any CCC loans from any year's crop?

☐ YES - 4a. How much was repaid— — $ —

(1) In cash? 258

(2) In certificates? 259

☐ NO

5. Did this operation have any CCC loans outstanding at the end of 1987? — $ —

☐ YES - 5a. How much was outstanding? 260

☐ NO

6. During 1987, did this operation sell any livestock or livestock products?

☐ YES ☐ NO - *[go to 8]*

7. What was sold and how much was received for each species?
[Check each species and record total receipts.]

— $ —

☐ **BEEF** cows, bulls and replacement heifers from the breeding stock 261

☐ **DAIRY** cows, bulls and replacement heifers from the breeding stock 262

☐ milk and other dairy products? *[cream, butter, cheese]* 263

☐ calves and all OTHER cattle 264

☐ sows, boars, and replacement gilts from the breeding stock 265

☐ all OTHER hogs and pigs 266

☐ ALL sheep and lambs *[exclude wool]* 267

☐ wool *[include incentive and unshorn lamb payments]* 268

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

The purpose of this item is to determine the cash flow to operations as a result of participation in the loan program.

Examples of "Other Crops" which may receive CCC loans are flax and rapeseed.

Item 4a — Repaid CCC loans

Record the amount of loans from CCC secured by agricultural commodities that were repaid in calendar year 1987, regardless of the year the loan was taken out. Do not include the crops that were forfeited during 1987 here. Payment should be recorded in that received for cash and that in PIK certificates.

Item 5 — CCC loans outstanding

Record the value of CCC loans that this operation had outstanding as of December 31, 1987.

Item 6 — Livestock sales - screening

Sales of livestock or products during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the marketings. For large integrated operations that do not sell the livestock, but pass them on to the next phase, obtain an estimate of the value of the livestock moving through the operation. This item screens for any of the species mentioned in item 7.

Item 7 — Beef and dairy cows, calves, hogs and sheep

INCLUDE:

(1) Include BEEF animals sold from the breeding stock.

(2) Include DAIRY animals sold from the breeding production stock.

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

(3) Include MILK and other dairy products such as cream, butter and cheese.

(4) Any other cattle or calves not included in (1) and (2) should be reported in CALVES AND ALL OTHER CATTLE. Include sales of cattle from a feedlot.

(5) Include all GILTS, SOWS AND BOARS sold from the breeding stock.

(6) In ALL OTHER HOGS AND PIGS record the sales of all other hogs and pigs such as feeder pigs and market hogs.

(7) In SHEEP AND LAMBS record all sells whether they were from the breeding herd or not.

(8) In WOOL include all money received including incentive and unshorn lamb payments.

P sales and income (excl. landlord's share) — continued P

8. During 1987, did this operation sell any poultry or poultry products?

☐ YES ☐ NO - *[go to 10]*

9. What was sold and how much was received for each species or product? *[Check each and record total receipts.]*

	— $ —
☐ broilers, fryers, and other meat-type chickens	269
☐ turkeys *[for slaughter and breeding]*	270
☐ all OTHER poultry (including layers and started pullets *[record ducks and game birds below in 10]*	271
☐ eggs	272

10. Did this operation sell any OTHER livestock or livestock products such as horses, rabbits, goats, bees, honey, fish, mink, ducks or game birds?

	— $ —
☐ YES - 10a. How much was received?	273

☐ NO

11. What was the estimated MARKET value of—

	— $ —
11a. meat and livestock products produced and used on this operation for home consumption in 1987?	274
11b. other products produced and used on this operation such as fruits, berries, vegetables, firewood?	275

Livestock Ref.
500

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Item 8 — Sales of poultry - screening

This item screens for any poultry or poultry products sold in 1987. If the answer is YES, go to 9.

Item 9 — Broilers, fryers, turkeys, other poultry and eggs sold.

Ask the respondent what poultry or products he/she sold in 1987 and enter a check beside the appropriate species. Then record the total amount received.

Items 10 and 10a — All other livestock or livestock products.

Any other livestock or products not included in items 8 or 9 should be included here. Record the sale of horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock.

Item 11a — Market value of meat and livestock products.

Record the estimated MARKET value of all the meat and livestock products produced and used on this operation and also consumed in 1987.

Item 11b — Market value of everything else

Record the estimated MARKET value of everything else which may have been produced and used on this operation such as fruits, berries, vegetables and firewood.

Item 12 — Contract arrangements - screening

This item screens the operation for contract arrangements to produce livestock, poultry or their products and anything else, such as fruits, vegetables, other crops or products. Included here are custom feeding contracts.

P

sales and income (excl. landlord's share) — continued

P

12. Did this operation produce any crops, livestock, poultry or other agricultural products under a **contract arrangement** during 1987? (Include all production, marketing, custom feeding or other contracts.)

☐ YES ☐ NO - *[go to 13]*

12a. What was the estimated market value of the following products at the time they were removed—

	— $ —
(1) all livestock, poultry or their products? .....market value	276
(2) How much did this operation receive in fees for raising the livestock (or products)? .....income	277
(3) everything else? *[fruits, vegetables, other crops or products]*.....market value	278
(4) How much did this operation receive in fees for the crops or products? .....income	279

13. Did this operation (excluding landlord's share) receive any money from Federal farm programs? *[include commodity PIK certificates]*

☐ YES ☐ NO - *[go to 15]*

	— $ —
14. What was the TOTAL received? *[gross value of cash plus PIK]*.....	280

14a. How much of this was for—

	Federal — $ —
(1) set-aside or Acreage Reduction Programs? *[deficiency, diversion or storage]*	281
(2) 10-year CRP or conservation reserve rental payments? *[including corn bonus]*.....	283

	Federal — $ —	State or local — $ —
(3) incentive or cost share payments for—		
(4) soil conservation practices and improvements?	285	286
(5) all other conservation programs? ...	287	288

15. Did this operation receive any money from a state or local source for participating in any conservation program?

☐ YES - 15a. What program was it and how much was received? *[Enter amount in right-hand column for each program.]*

☐ NO

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Item 12a — Value of products produced under contract removed from this operation.

Record the actual MARKET value of the products at the time they were removed from the farm or ranch. Do not include the amount received by the farmer or rancher to produce the product.

Record the fees received by the operator for raising livestock and poultry or crops produced under contract arrangements.

Item 13 — Federal farm programs

Record all CASH PLUS PIK payments related to the operation, excluding crop insurance payments, CCC loans, wool and unshorn lamb payments. Include cash diversion payments, target price payments, disaster payments or payments made for soil conservation or water use and control.

Item 14 — Receipts

Record the total received for all Federal farm program payments.

Item 14a — Federal farm programs

Of the total reported in Item 14, record how much was in each of the pre-listed categories.

Item 15 — State or local farm programs - screening

This item serves as a screening question to determine if the respondent received any payments for participating in any state or local farm or conservation program.

Item 15a — State or local farm programs

If the answer to item 15 was yes, determine what the state or local farm or conservation program was and how much was received by this operation.

P sales and income P
excl. landlord's share) — continued

16. Was there any other income, such as—
[check all that apply]

		NO	YES →	17. How much was it? — $ —
16a.	custom work for others? *[include machine hire]*	☐	☐	289
16b.	grazing of livestock?	☐	☐	290
16c.	wages earned on other farms and ranches?	☐	☐	291
16d.	sales of farm machinery and vehicles? *[FARM SHARE of autos]*	☐	☐	292
16e.	insurance indemnity payments?	☐	☐	293
16f.	OTHER farm-related income such as cooperative patronage dividends? *[exclude recreation income]*	☐	☐	294

18. Did this operation allow any hunting, fishing, or other outdoor recreation on its property in 1987? *[exclude household members and partner(s); may be free or paid]*

295

☐ YES ☐ NO - *[go to BB]*

18a. Was there income?

☐ YES ☐ NO - *[go to BB]*

— $ —

(1) How much was received for fishing and hunting only? 296

(2) How much was received for other outdoor recreation? 297

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Items 16a - 16f — Miscellaneous income

These items screen for any other income which may have been received by this operation. Check each item YES or NO if any income was received. The actual income will be reported in Item 17.

Item 16a — Custom work and machine hire

Include income received by the operator for custom work and machine hire that is part of the farm or ranch operation. This is work performed with the operator's machinery for others for a fee. Do not include custom work that is a separate operation and has its own bookkeeping system. Income from a separate operation should be record on in Section CC - MISCELLANEOUS, Item 4a.

Item 16b — Grazing of livestock

Include any income to this operation from the grazing of livestock on a per head or gain basis.

Item 16c — Wages on other operations

Include wages earned by the operator and other household members working on any other farm or work done for a landlord. Hired managers should not report the salary received from work done for this operation.

Item 16d — Sales of farm machinery and vehicles

Include all direct sales of machinery used for farming, such as tractors, combines, farm machinery, equipment or supplies. Also include the farm share of autos and trucks sold. Do not include items traded-in for other items since the value of these was deducted from the purchase price.

SECTION P - SALES AND INCOME (EXCL. LANDLORD SHARE)

Item 16e — Insurance indemnity payments

Include any income received in compensation for any hurt, loss or damage.

Item 16f — Other farm related income

Include all other farm related income not included in 16a-16e, excluding outdoor recreation income. Include by-product sales and cash, equity and patronage dividends from cooperatives returned to this operator as part of this operation. Also include sales of livestock manure and timber.

Item 17 — Miscellaneous income

Record the total 1987 income received by the items checked in 16a - 16f.

Item 18 — Outdoor recreation - screening

This item screens for any hunting, fishing or other outdoor recreation which may have been permitted by this operation in 1987. It may have been for a fee or not. Exclude any outdoor recreation which may have been done by a household member or partner.

Item 18a — Outdoor recreation for a fee - screening

This item screens for a outdoor recreation for which there was a fee. A further breakdown is needed for fishing and hunting only and any other.

BB ASSETS and LIABILITIES (excl. landlord's share) BB

1. *[respondent's best estimate; include partner's share; exclude landlord's share]*
At the end of 1987, what was the **market value** of—

		MARKET VALUE — $ —
1a.	**all LAND OWNED** by this operation and all buildings and structures on it? *[include operator dwelling if on the operation]*	298
1b.	all FARM buildings, such as barns, cribs, silos, equipment shops, grain bins, storage sheds?	299
1c.	operator's dwelling? *[if on the operation]*	300
1d.	all trucks, farm share of autos, tractors, machinery, tools, equipment and implements?	301

2. How much was— — $ —

2a.	all the livestock and poultry on hand at the **BEGINNING** of 1987 worth?	302
2b.	all the livestock and poultry on hand at the **END** of 1987 worth?	303
2c.	all crops stored **on** or **off** this operation on hand at the **BEGINNING** of 1987 worth?	304
2d.	all crops stored **on** or **off** this operation at the **END** of 1987 worth?	305

3. At the end of 1987, what was all purchased seed, feed, fertilizer, chemicals, fuels, parts, and other farm (ranch) supplies on hand worth? 306

4. *[show GREEN card, SC-1]*

Considering all OTHER assets of this operation at the end of 1987, what **code** represents the total value? code

[Include shares in farm cooperatives, (i.e., co-ops, FLB, PCA), bonds, certificates of deposit, savings and checking accounts, and money owed to this operation, including crops and livestock sold for future payment.] 307

Ref. page
501

1987 FARM COSTS AND RETURNS SURVEY

SC-1

Value Codes

Dollar Range	Code
None....	1
$ 1.....999....	2
$ 1,000.....2,499....	3
$ 2,500.....4,999....	4
$ 5,000.....9,999....	5
$ 10,000.....14,999....	6
$ 15,000.....19,999....	7
$ 20,000.....24,999....	8
$ 25,000.....29,999....	9
$ 30,000.....34,999....	10
$ 35,000.....39,999....	11
$ 40,000.....59,999....	12
$ 60,000.....79,999....	13
$ 80,000.....99,999....	14
$100,000.....174,999....	15
$175,000.....249,999....	16
$250,000.....499,999....	17
$500,000.....999,999....	18
Over $1,000,000....	19

SC-2

Type of Farm Codes

Type of Farm	Code	Commodities
Cash Grain	1	Corn,sorghum,small grains, flax, soybeans for beans, cowpeas for peas dry edible and seed beans, peas and rice.
Tobacco	2	Tobacco
Cotton	3	Cotton
Other Field Crops	4	Peanuts, Irish potatoes, sunflowers, sweetpotatoes, sugarcane, broomcorn, popcorn, sugarbeets, mint, hops, seed crops, hay, silage and forage
Vegetables, Fruits and Nuts	5	All vegetable and melon crops, citrus and non-citrus tree fruits, other small fruits, berries, grapes and nuts.
Nursery or Greenhouse	6	Nursery or Greenhouse
Beef, Hogs, Sheep	7	Cattle, calves, hogs, sheep, goats,wool, and mohair (Exclude dairy cattle)
Poultry	8	Chickens, eggs, turkeys, ducks and other poultry products.
Dairy	9	Milk and cream, plus sales of dairy cows,heifers , calves and dairy bulls.
Other Livestock	10	Mules, horses, foals and ponies, fur farms, bees and honey, fish, minnows, etc

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

Item 1 — These questions are used to determine the MARKET value of assets associated with this operation at the end of 1987. Obtain the operator's best estimate of the current market value of the listed assets. Include the partners share, but exclude the landlord's share.

Item 1a — Value of all land and buildings OWNED

Ask the operator the estimated market value of all land and buildings OWNED by the operation as of December 31, 1987. Include the value of his dwelling if the dwelling was located only one of the acres in Item 1e (Section A - LAND OPERATED, RENT PAID) or if expense for repairs, maintenance, taxes, insurance, etc. for the dwelling were included in the expenses for the farm operation.

Item 1b — Value of all farm buildings

Using the same criteria as item 1a, ask the operator the estimated market value of all FARM buildings he owned on land that he or his partner(s) owned on December 31, 1987. Include barns, cribs, silos, equipment shops, grain bins, storage sheds and similar type buildings. This value should be less than the value in 1a. Exclude the dwelling value.

Item 1c — Value of operator's dwelling.

Again, using the same criteria as item 1a, ask the operator the estimated value of his dwelling if owned and located on this operation. This value will be used to impute a fair rental value to the operator for income purposes. Include the value of the operator's dwelling if the dwelling was located on one of the acres in Item 1e (Section A-LAND OPERATED, RENT PAID) or if expense for repairs, maintenance, taxes, insurance, etc. for the dwelling were included in the expenses for the farm operation.

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

Item 1d — Value of trucks, autos, tractors, farm machinery, equipment and tools.

Estimate the current market value of the farm share of trucks, farm share of autos, tractors, machinery, tools, equipment and implements owned by the operation.

Item 2 — Value of all livestock and poultry and crops

Record the market value of the inventory at the appropriate point in time--BEGINNING or END of 1987.

Item 2a — Value of all livestock and poultry at the BEGINNING of 1987.

Record the value of the inventory at the market price at the BEGINNING of 1987. Include all types of livestock; animals held for breeding purposes as well as those held for resale. Include beef and dairy cows, bulls, heifers, calves and any other cattle, hogs and pigs, sheep and lambs, horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock.

Item 2b — Value of all livestock and poultry at the END of 1987.

Record the value of the inventory at the market price at the END of 1987. Include the same livestock species as mentioned in item 2a.

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

Item 2c — Value of all crops stored at the BEGINNING of 1987.

Include crops produced in 1987 as well as earlier years, regardless of intended use. This may be for feed, seed, sales or something else. CCC stocks owned by the operation should be EXCLUDED. Hog and cattle producers may overlook large holdings of whole grain intended for feed. All whole grains on hand are to be included; however, items such as cracked corn, rolled oats and so on are to be excluded here and reported in item 3. Also include crops purchased in addition to what was produced. Include silage and hay.

Item 2d — Value of all crops stored at the END of 1987.

Record the value of the inventory at the market price at the END of 1987. Use the same definitions as in 2c.

BB assets and liabilities (excl. landlord's share) — continued BB

5. What banks, individuals, co-ops, merchants or Federal agencies did this operation owe money to at the end of 1987?
[check each one below]

	Balance — $ —	Avg. Int. — % —
☐ Production Credit Association	309	310 .__
☐ Federal Land Banks	311	312 .__
☐ Farmers Home Administration	313	314 .__
☐ banks, savings and loan associations	315	316 .__
☐ life insurance companies	317	318 .__
☐ implement dealers *[for tractors and other equipment]*	319	320 .__
☐ co-ops and other merchants *[truck, autos, fuel, feed, repairs, etc.]*	321	322 .__
☐ individuals from whom farm land was bought	323	324 .__
☐ loans for CCC storage and drying facilities	325	326 .__
☐ **OTHER** debts such as for unpaid veterinarian bills, taxes or insurance premiums *[include finance companies but exclude CCC loans]*	327	328 .__

5a. Any others? *[enter above]*

6. *[ask for each item checked]*

What was the balance and (average) interest rate paid during 1987?

[Interest rate may be zero, for example unpaid veterinarian bills. Enter balance in left-hand column and (average) interest rate in right-hand column, if applicable.]

Ref. page
308

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

Item 3 Other farm or ranch supplies

Included the estimated value of unused supplies of purchased inputs such as seeds (incl. corn) fertilizer, chemicals, medications, fuels and parts.

Item 4 Other assets

This is the first item for which you will be using a Show Card (SC). The card for this item is printed on GREEN paper (since it deals with income), and is called SC-1.

It contains the following categories and respective codes:

			Code
None			1
$	1-	999	2
$	1,000-	2,499	3
$	2,500-	4,999	4
$	5,000-	9,999	5
$	10,000-	14,999	6
$	15,000-	19,999	7
$	20,000-	24,999	8
$	25,000-	29,999	9
$	30,000-	34,999	10
$	35,000-	39,999	11
$	40,000-	59,999	12
$	60,000-	79,999	13
$	80,000-	99,999	14
$	100,000-	174,999	15
$	175,000-	249,999	16
$	250,000-	499,000	17
$	500,000-	999,999	18
Over		$1,000,000	19

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

After handing the respondent the card, ask him to identify the code which corresponds to the range of this operations Other assets. These assets are other than those enumerated elsewhere in the questionnaire and include shares in co-ops, Federal Land Banks (FLB), Production Credit Association (PCA) and other farm cooperatives, bonds, certificates of deposit, savings and checking accounts and money owned to the operation, including crops and livestock sold for which payment had not been received at the end of 1987.

Item 5 Total debt

Ask the respondent what banks, individuals, co-ops, merchants or Federal agencies this operation owed money to at the end of 1987. Check the appropriate pre-listed category. Debts include all obligations except for non-farm purposes to pay which the farm or ranch had. Include such items as operating or feeder livestock notes, accounts at feed mills, unpaid custom charges, loans for breeding livestock, machinery, farm or ranch improvements or a mortgage or contract on farm or ranch real estate. Include the dwelling if located on the operation, item 1c. Include farm property rented to others.

Do not report any debt for non-farm purposes even if farm or ranch assets are used as collateral. For debts covering more land than the acres operated, report the best estimate for that part of the debt applying to this farm or ranch.

Do not include any of the following debts:

(1) non-agricultural property such as cotton gins, canning factories, sugar mills, motels, retail stores and so on.

(2) change accounts that are usually paid in full each month.

(3) debts owed for less than thirty days.

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

Include with OTHER debts the farm share of debts owed to:

(1) all finance companies, such as GMAC and John Deere Finance Company as well as Household Finance.

(2) state Farm Land Boards, Small Business Administration and past due accounts.

For the category, "individuals from whom farm land was bought", include all seller financed debt for land purchased for this operation regardless of the year. This would include all land contracts as well as mortgages.

Item 5a — Other debt - prompt

After the respondent has reported all his debts, ask if there are any others. This serves as a reminder that none were forgotten.

Item 6 — Balance and average interest rate

For each of the checked categories, ask what the balance owed was at the end of 1987 and the average interest paid during 1987. The interest rate should be recorded to the nearest one-tenth of a percent in the right-hand column. The interest may be zero and the balance positive if no interest is charged, such as for unpaid veterinarian bills.

CC

MISCELLANEOUS (incl. landlord's share)

CC

1. *[show GREEN card SC-1]*

Now I would like to have you classify the total acres you operated in terms of total gross value of sales.

[Be sure sales represent only 1987 and earlier years' production from acres operated in A.]

Considering
- — All your crops sold in 1987.
- — All livestock, poultry (including commercial broilers) and products sold in 1987.
- — All sales of any miscellaneous agricultural products in 1987.
- — All government payments received in 1987.
- — Landlord's share of crops sold in 1987.

code

2. What code represents the total gross value of sales?..... 329

[If Code = 1 or 2, record all 1987 crops, land uses and livestock or poultry on total acres operated, copying as much as possible from B.]

Crops or Land Use	— acres —	
_____	_____	330
_____	_____	
_____	_____	
Livestock and Poultry	**— number —**	
_____	_____	
_____	_____	
_____	_____	

3. *[show GREEN card, SC-2]*

What percent of the total gross value of sales *[indicated in 2]* in 1987 was provided by each of the groups on this card? *[enter percent in column]*

code		percent	
1	cash grain	_____	
2	tobacco	_____	
3	cotton	_____	
4	other field crops	_____	
5	vegetables, fruits/nuts	_____	331
6	nursery or greenhouse	_____	
7	beef, hogs, sheep	_____	
8	poultry	_____	
9	dairy	_____	
10	other livestock	_____	
		100%	

SECTION CC - MISCELLANEOUS

General

This is the second item for which you will be using the Show Card (SC - 1, on GREEN paper).

Items 1-3 are used to classify operations by type of farm or ranch and value of sales. The value of sales must represent 1987 sales from the acres operated in Section A.

If the operation has a landlord, this share should be included in items 1 through 3.

In determining the code, be sure to include sales of products raised on the total acres operated. For AREA operators, this would include acres both inside and outside the segment. For tenant farmers include in total value of crops sold any production given to the landlord for land rented. If the operator is also a landlord, exclude in the value of products sold any dollars received for sale of products acquired as payment from land rented to others.

Crop sales include all 1987 AND EARLIER YEARS production which was sold during 1987.

Livestock and poultry refer to all kinds of livestock and poultry sold during 1987. Sales of all types of horses are considered income; however, prizes or winnings from horse racing or showing are not to be considered income.

Sales of miscellaneous agricultural products would include sales of honey, furs, fish, nursery and green-house products, rabbits and so on.

Include all government program payments received in 1987.

Item 2

Code

After showing the respondent the card, ask him which code represents his total gross value of sales. Enter this code in code box 329.

SECTION CC - MISCELLANEOUS

If the gross value of sales is less than $1,000, code 1 or 2, record all the 1987 crops, land uses, livestock, and poultry on the total acres operated in 1987. Be specific in the tables as to types of crops planted, such as barley, corn (field or sweet), tobacco or vegetables. Include crops planted in the fall of 1986 or the spring of 1987 if the crop was harvested or intended for harvest in 1987.

Crops cut for hay or used as pasture should be listed as a crop or land use. If the respondent reports only idle pasture and no crops, determine if any livestock were on this pasture in 1987. Note on the questionnaire when the livestock grazed and the approximate number. Record all livestock, poultry and miscellaneous livestock (bees, mink, rabbits, etc.) on the entire operation. This would include or crops previously reported as well as livestock not included.

Item 3 — This is the first item for which you will be using a SC - 2. The card for this item is printed on GREEN paper. It contains the following categories and codes:

Code		
1	Cash Grain	Corn, sorghum, small grains, flax, soybeans for beans, cowpeas for peas, dry edible and seed beans, peas and rice.
2	Tobacco	Tobacco.
3	Cotton	Cotton.

SECTION CC - MISCELLANEOUS

Code		
4	Other Field Crops	Peanuts, Irish potatoes, sunflowers, sweet potatoes, sugarcane, broom-corn, popcorn, sugarbeets, mint, hops, seed crops, hay, silage and forage.
5	Vegetables, Fruits and Nuts	All vegetables and melon crops; citrus and non-citrus tree fruits, berries, grapes and nuts.
6	Nursery or Greenhouse	Nursery or greenhouse.
7	Beef, Hogs, Sheep	Cattle, calves, hogs, sheep, goats, wool and mohair (exclude dairy cattle).
8	Poultry	Chickens, eggs, turkeys, ducks and other poultry products.
9	Dairy	Milk and cream, plus sales of dairy cows, heifers, calves and dairy bulls.
10	Other Livestock	Mules, horses, foals and ponies, fur farms, bees and honey, fish, minnows, etc.

SECTION CC - MISCELLANEOUS

Based on the gross value of sales recorded in item 1, ask the respondent to indicate which percentage of the gross value of sales came from each of the 10 listed major commodity groupings. Record the answer in whole percentage numbers. The percent response will be used to classify this operation in one of the 10 types of farms and ranches. When the respondent indicates sales for two of these commodity groupings were 50/50 for 1987, ask the respondent to identify which of the two groups had the largest gross value of sales. If the respondent only received government payments in 1987, code the farm or ranch based on the type of payment received or the farm or ranch use prior to being placed in a government program. This situation might occur where whole operations were placed in CRP.

Item 4 Off-Farm income

These questions may be skipped if this is a non-family corporation.

This is the third item for which you will be using the Show Card (SC - 1, on GREEN paper). If the respondent indicates the operation suffered a loss in any of the categories, code the item with the corresponding NEGATIVE code.

The amount of off-farm (or ranch) income available to the agriculture sector is sizeable. In order to understand the economic well being of the sector it important to know the amount of outside income available to farm (or ranch) families. For the four listed sources of off-farm income, record the code this operation falls in. If the operation has a landlord, DO NOT INCLUDE HIS SHARE.

CC miscellaneous — continued CC

4. *[show GREEN card SC-1]*
[Exclude landlord(s) share]

Which code number represents the income received in 1987 by you (the operator) and other household members from—

4a.	an off-farm business? . *[Net income]* .....code	332
4b.	off-farm wages or salaries? . *[Gross income]* .....code	333
4c.	interest and dividends? . *[Gross income]*.....code	334
4d.	other off-farm sources (such as non-farm rental property, Social Security, retirement)? . *[Net income]* .....code	335

5. Did this operation have agricultural production in any other state during 1987? *[other than state shown on face page]*

☐ YES - 5a. Which state had the largest value of production? *[enter name]* 336

_____

☐ NO

6. Was this operation—*[circle code]*

— a corporation? 1
— a legal partnership? 2
— an individual operation? (sole proprietorship) 3
— or a cooperative?.....4

337

SECTION CC - MISCELLANEOUS

INCLUDE:

(1) the operator.

(2) the senior partner for partnerships (if possible, otherwise, the partner being interviewed).

(3) the individual identified as the operator for family corporation.

(4) other household members living on this operation.

EXCLUDE:

(1) landlord(s) share.

(2) other partners in a partnership.

Item 4a Off-farm related business

Include NET income earned from businesses other than farms or ranches. Include income from ag service firms and businesses. Include income from farm-related businesses only when bookkeeping is maintained apart from this operation and expenses and income are not included elsewhere in this questionnaire.

Exclude income earned from other farming or ranching operations and farm-related sources reported elsewhere in the questionnaire. Interest from an off-farm business should be included in 4c.

SECTION CC - MISCELLANEOUS

Item 4b — Off-farm wages and salaries

Include GROSS cash wages and salaries, tips, commissions, paid bonuses, leave pay, compensation for corporate officers earned by operators and their households. Cash wages and salaries earned by operators and their households from working on other farms or ranches should be included in Section P - SALES AND INCOME.

Item 4c — Interest and dividends

Include interest and dividends from all investments. Any interest received from off-farm sources should be included here. Include oil/gas royalties here.

Item 4d — Other off-farm income

Include all other NET income not yet reported by operators and their households from sources other than this operation. This includes non-farm rental property, Social Security and retirement.

Item 5 — State of operation

Indicate on the questionnaire the major State of production if other than the state on the face page. All data will be allocated to the major state.

Item 6 — Type of operation

This question identifies the type of operation, e.g., corporation, legal partnership, individual or cooperative. These are defined as:

Corporation - A legal form or organization separate from its owners. It is created under the laws of the individual states.

SECTION CC - MISCELLANEOUS

Legal partnership - two or more persons joined together to carry on the operation. Each partner contributes in some way money, property, labor, or skill and shares in profits or losses in accordance with agreed proportions. To be recognized as a partnership, the relationship of the partners must be LEGALLY established. Husband and wife partnerships should generally be classified as family proprietorships. Exclude joint operations which involve livestock only, with no land, and landlord-tenant arrangements.

Individual - Also a family proprietorship, exists when one person (operator) is solely responsible for making management decisions for that operation.

Cooperative - Voluntarily organized association controlled by its members or patrons.

DD OPERATOR CHARACTERISTICS DD

1. In 1987, what was your (the operator's) major occupation; farm or ranch work, hired manager or something else? *[circle code]*

   farm/ranch work 1
   hired farm/ranch manager 2
   other 3

   338

2. How old were you (the operator) on your last birthday? 339

3. How much formal education do you (the operator) have? *[circle code]*

   less than high school graduation 1
   completed high school 2
   some college 3
   completed college (BA or BS).....4
   beyond college 5

   341

4. How many persons, including yourself (the operator), lived in this household on December 31, 1987?
   [include infants under 1 year and ALL students] 340

5. We're trying to learn about the methods that operators use for keeping their financial records. Does this farm operation use or subscribe to a service for keeping its farm or ranch FINANCIAL records? *[circle code]*

   342

   ☐ NO - Code = 2

   ☐ YES - 5a. *[show PEACH card SC-3]* Who provides this service?

   extension service 3
   farm business association 4
   accountant (not just taxes).....5
   farm mgmt/info business.....6
   a producer organization.....7
   another source 8

   What is its name? *[write answer in box below]*

   C1

6. *[show PEACH card SC-3]* (Aside from your service) Which of these methods do you or a family member use to keep track of this operation's expenses and income? *[circle code]*

   791

   general ledger 9
   farm records workbook 10
   Who issues this workbook?
   home/personal computer.....11
   What is the name of the software?
   another method?.....12
   What is the method you use?

   [Write answer in box below]

   C2

SECTION DD - OPERATOR CHARACTERISTICS

Item 1 — Major occupation

Circle the code (1-3) which represents the operator's major occupation in 1987. This is defined as where he spend 50% or more of his work time in 1987.

Item 2 — Operator's age

The results of this question will allow us to analyze the financial situation as it related to the age of operators.

Item 3 — Formal education

Circle the code (1-5) which represents the operator's greatest amount of formal education. BA = Bachelor of Arts and BS = Bachelor of Science. Secretarial, beautician or vocational schools should not count as formal education.

Item 4 — Number of persons living in household

This will aid in determining the number of persons dependent on farm income and how many are affected by the current financial situation. Include the operator, infants and all students.

Item 5 — This question asks if the operator currently uses or subscribes to an outside service for keeping the farm or ranch operation's financial records. **The operator provides his financial information, expenses and income, to the service, and for a fee, the service then organizes and keeps the records for him.** The service may be a benefit of a membership for which he pays dues. There may also be isolated cases where such a service is provided free of charge. (Note: The question asks for what the operator is doing now, not what he did during 1987).

DD-5

SC-3
front

1987 FARM COSTS AND RETURNS SURVEY

Who provides this operation's FINANCIAL records-keeping service?

3 Cooperative EXTENSION Service

4 farm business/farm management ASSOCIATION

5 an ACCOUNTANT, on a regular basis throughout the year, NOT JUST FOR TAXES

6 a BUSINESS that provides farm management, or information services

--What is its name?

7 a PRODUCER ORGANIZATION, such as wheat growers, cattle producers, Farm Bureau, etc.

--What is its name?

8 ANOTHER SOURCE

--What is its name?

SECTION DD - OPERATOR CHARACTERISTICS

If the respondent says that he does not use a service, check the NO box and continue on to Question 6. If the respondent says, "yes", check the YES box, ask the follow-up question, and show the respondent the PEACH card (SC-3), side DD-5, which lists the types of services. Ask the respondent to identify the category that best describes the provider of the service he uses. If he uses more than one, ask him to select the one he considers to be primary. Circle the number on the questionnaire that corresponds to the respondent's choice. It items 6, 7, or 8 are circled, ask the name of the service provider, and record the answer in the box labelled C1 on the questionnaire.

The categories of service providers are differentiated mainly by whether the provider is public or private, profit or non-profit. They are:

- **cooperative extension service** (circle #3): Extension is a non-profit public service operated by the state or the state's land-grant university. The operator may deal with his local county extension agent or he may send his information directly to the university-level extension office. DO NOT circle this item if the operator has merely obtained a recordbook or workbook from the extension service.

- **a farm business/farm management association** (circle #4): A farm business association (FBA) is a non-profit organization organized, controlled, and operated by its member farmers. It provides business management and records-keeping services for the individual farm business of its members. If a state has an FBA, the state's name typically precedes the words "Farm business Association" in forming the organization's name; e.g., the Iowa Farm Business Association, the Illinois Farm Business/Farm Management Association, the Southeast Minnesota Farm Business Association.

SECTION DD - OPERATOR CHARACTERISTICS

- **an accountant, on a regular basis throughout the year, not just for taxes** (circle #5): Circle this item if the operator receives record-keeping assistance from an accountant or an accounting firm. For this category, the accountant's services must be provided on a regular basis throughout the year, most likely monthly or quarterly. If the operator consults an accountant once a year only for tax preparation, DO NOT select this category. An accountant or accounting firm (even a CPA) operates in the private sector and is in business to make a profit.

- **a business that provides farm management or information services** (circle #6): Circle this item if the provider of the farm records-keeping service is a private firm, in business to make a profit. Businesses that fall into this category vary widely, from firms that specialize in farm management services to agribusinesses that have diversified, adding records-keeping services to their offerings.

  If this category is selected, obtain the name of the provider of the service and write it in the box labelled C1 on the questionnaire. Be as complete as possible. If the name of the records system differs from that of its provider, include it if it is easily obtained. For example, local farm management firms may franchise with national private sector records services, such as Agrifax or Agnet if the respondent says, "I get Agrifax from Joe's Farm Management Service," then write, "Agrifax Joe's Farm Mgmt. Serv." Standard abbreviations are acceptable.

SECTION DD - OPERATOR CHARACTERISTICS

- **a producer organization, such as wheat growers, cattle producers, Farm Bureau, etc.** (circle #7): These are non-profit trade associations, representing the interests of their dues-paying farmer members. There are two types: 1) commodity group organizations, such as wheat growers, soybean association, cattle producers, pork producers, dairy association, etc.; 2) general farmer/producer associations, such as Farm Bureau, the National Farmers Organization (NFO), Farmers Union, and others. If this category is selected, obtain the name of the association or organization that provides the operator's records-keeping service and write it in the box labelled C1 on the questionnaire. Be as complete as possible, noting whether this is a state-level, regional, or national association. Standard abbreviations, such as those for state or region names, are acceptable.

- **another source** (circle #8): If the records-keeping service is not provided by one of the other sources listed, circle this category. Alternative sources may include cooperatives (co-ops) and financial institutions (banks, credit unions, savings & loans, PCA's, etc.). If this category is selected, obtain the complete name of the provider. Be sure that the response includes a description of the type of service provider. For example, responses may be "Patriot State Bank", "Southern States Cooperative," etc. Write the name in the box labelled C1 on the questionnaire. Standard, clear abbreviations are acceptable.

DD - 6

SC - 3
back

1987 FARM COSTS AND RETURNS SURVEY

Which of these methods do you or a family member use to keep track of this operation's expenses and income?

9 GENERAL LEDGER or personal recordbook

10 formal FARM RECORDS WORKBOOK or account book

--Who issues this workbook?

11 HOME or PERSONAL COMPUTER with appropriate software

--What is the name of the software?

12 ANOTHER METHOD

--What is the method you use?

SECTION DD - OPERATOR CHARACTERISTICS

If the respondent says that he doesn't know whether or not he uses a service, use probes that explain what is meant by a records-keeping service. Probes may be of the form:

"Does someone outside the operation keep your records?"

"Do you pay a fee to someone else to keep your books for you?"

"Does someone else prepare monthly or quarterly statements of the operation's expenses, income, or cash flow for you?"

If the respondent continues to insist that he does not know, obtain a description of what the operator does with regard to keeping records, and write comments in the margins. Do not check a YES/NO box, and leave the C1 box blank.

If the respondent answers YES to using a service, but does not know or cannot identify which category it falls into, select "another source" and circle #8. Proceed to obtain the name of the service provider and write it in box C1. If for items 6, 7, or 8, the respondent does not know the name of his service provider, write DK for "don't know" in box C1.

Item 6 Method for tracking expenses/income

This question asks the respondent **to identify the method currently used by the farm operator himself or a family member to keep track of the operation's expenses and income.** If the operator does subscribe to a records-keeping service (that is, he has provided a YES answer to the previous question, DD-#5), then include the words "Aside from your

SECTION DD - OPERATOR CHARACTERISTICS

service" to clarify that the question asks about the method used by the operator himself or a family member, not his service. (Note: The question refers to the method currently used, not what was done during 1987).

Show the respondent the PEACH card (SC-3), side DD-6, which lists the methods. Ask the respondent to identify the category that best describes the method he used to keep his financial records. If he uses more than one of these methods, ask him to select the one he considers to be primary, and circle the number on the questionnaire that corresponds to the respondent's choice. If items 10, 11, or 12 are circled, then ask the "specify-type" question as printed on the questionnaire. Record the answer in the box labelled C2.

These categories are differentiated by level of organization relative to farming and automation. They are:

- **general ledger or personal recordbook** (circle #9): A general ledger is a general all-purpose account book. It may be purchased or obtained at a local stationery store, drugstore, dime store, etc. It does not list farm-specific accounts. It is general and can be used by anyone for personal or business accounting. Or the farmer may write expenses and income items into a notebook or workbook that he developed himself. In cases such as these, select this item.

- **formal farm records workbook or account book** (circle #10): This is a recordbook, workbook, or account book specifically designed and organized for the records of farm businesses. It contains categories defined for entry of farm expenses and/or income items. If this is the selected response, ask the farm operator for the name of the group or organization who issues the workbook he uses and write the answer in the box labelled C2 on the

SECTION DD - OPERATOR CHARACTERISTICS

questionnaire. The issuer is the group that developed or wrote the workbook. The issuer's name should appear on the cover of the book, probably as part of the title.

Do not record where the workbook was obtained, but who issued or developed it. For example, the Ideal Farm Record Book may be obtained from a local merchant, such as a drugstore or stationery store. Do not record the name of the store; record "Ideal" as the issuer, or for clarity, write the complete title, "Ideal Farm Record Book." A common issuer of farm account books is Cooperative Extension Service. Since a farmer may be using a book issued by another state's extension service, the state's name must be included in the answer written in the C2 box. If the respondent uses a recordbook issued by his records-keeping service (from Question 5), then record the name of the service in box C2. Be as complete as possible. Standard abbreviations are acceptable.

- **home or personal computer with appropriate software** (circle #11): If the operator or a member of his family uses a home or personal computer for keeping his financial records, select this item. The computer is programmed by means of software, which is like a "recordbook" on the computer.

  Obtain the name of the software used by the farm operator or family member for keeping the operation's financial records, and write it in the box labelled C2 on the questionnaire. Be as complete as possible. Include the name of the issuer or developer of the software. For example, "Pioneer Mgmt. Ledger" sufficiently describes the records-keeping software developed by Pioneer Farm Information Management Services. Standard abbreviations are acceptable.

SECTION DD - OPERATOR CHARACTERISTICS

- **another method** (circle #12): If the operator does not use one of the previous three methods listed (items 9, 10, or 11), circle this item. Then proceed to find out what the operator or a family member does to keep track of the operation's expenses and income by asking the follow-up question, "What is the method you use?" Write the answer in the box labelled C2 on the questionnaire. **The answer "no method" is not acceptable,** as it is assumed that every farm operation must keep tract of its expenses and income in some manner for tax purposes. The operator may not consider what he or a family member does to be a "method". That is, he may be doing nothing more than keeping receipts, making notes on bank statements, or filing check stubs or cancelled checks. These are all acceptable answers. The proverbial "shoebox" is an acceptable answer. If possible, try to note how organized the operator's efforts are. For example, if he stores receipts, checks, etc., in a file with divisions marked by expense or enterprise category, write, "files receipts by category." "File" and "category" are the key words in this example. If the farmer is indeed using a method with minimal organization, please use phrases such as these in your written answer:

"keeps cancelled checks"	"keeps receipts"
"uses bank statements"	"keeps check stubs"
"files receipts by category"	"shoebox"

SECTION DD - OPERATOR CHARACTERISTICS

Do not feed words, such as "shoebox," to the respondent. "Shoebox" implies lack of organization. If this is the case, then "shoebox" is an acceptable answer. But if he files his information according to some method of categorization, whether it is in an accordion file, an index card box, or a file drawer or cabinet, the word "file" should be used in the answer. Probes, such as, "Do you organize or file these items in any way?", may help to determine this.

Indeed, the operator may be using some organized method that simply does not appear in the list. Do not assume that "another method" means "shoebox".

Try to use clear, highly descriptive words in the written answers. Be as complete as possible. Standard abbreviations are acceptable.

If the respondent does not know or cannot identify which category his method falls into, probe to obtain a description of his method and write a brief summary in the margins. If the respondent selects categories 10 or 11, but does not know the issuer of the recordbook or the name of the software, write DK for "don't know" in box C2.

Item 7 Suppliers of fertilizer

The name, address and phone of the major supplier may be recorded here but MUST be recorded on the Worksheet (WS-3) if not recorded previously and checked for fertilizer. The state office will use these names to update their list of fertilizer dealers to enumerate on the prices paid surveys.

DD operator characteristics — continued DD

7. From whom does this operation usually buy its fertilizer?
[record name, address and phone on supplement]

8. From whom does it buy its fuel?
[record name, address and phone on supplement]

9. From whom does it buy its farm supplies?
[record name, address and phone on supplement]

10. To help identify duplication on our list of farm (ranch) operators, I would like to verify/record the operator's Social Security and Employer ID number.

Operator's SSN	342 ___-__-____
Federal Employer ID Number	343 __-_____
State Employer ID Number	344 ___-____

SECTION DD - OPERATOR CHARACTERISTICS

Item 8 — Suppliers of fuel

This question should be asked of all respondents whether or not they had any fuel expenses.

The name, address and phone of the major supplier may be recorded here but MUST be recorded on the Worksheet (WS-3) if not recorded previously and checked for fuel. The state office will use these names to update their list of fuel dealers to enumerate on the prices paid surveys.

Item 9 — Suppliers of farm supplies

This question should be asked of all respondents whether or not they had any expenses for farm supplies.

The name, address and phone of the major supplier may be recorded here but MUST be recorded on the Worksheet (WS-3) if not recorded previously and checked for farm supplies. The state office will use these names to update their list of farm supply dealers to enumerate on the prices paid surveys.

Item 10 — Social security, employer ID and state employer ID

Obtaining (or verifying) the operator's Social Security Number, Federal employer ID and state employer ID number will help determine the overlap (or non-overlap) status of the area frame operators. This will also be used to check for duplication within the list frame.

— 40 —

EE CONCLUSION EE

1. *[Ask only if this operation was a PARTNERSHIP — see screening section, questions 4 or 5 — else go to 2.]*

   What is the name and address of each of the (other) partners?

   Name _____ Name _____

   Address _____ Address _____

   _____ _____

   Phone _____ Phone _____

   LSF ID _____ FCRS Str LSF ID _____ FCRS Str

2. *[Ask only if **LIST** sample and **PRIMARY NAME** on label is individual; else go to 5.]*

   During 1987, did you (the operator) make any day-to-day decisions for another farm or ranch which—

	NO	YES
2a. grew any crops?	☐	☐ - *[go to 4]*
2b. had livestock or poultry?	☐	☐ - *[go to 4]*
2c. sold agricultural products?	☐	☐ - *[go to 4]*
2d. received government payments?	☐	☐ - *[go to 4]*
2e. had any crops in storage?	☐	☐ - *[go to 4]*
2f. had any expenses for the purpose of producing agricultural products?	☐	☐ - *[go to 4]*

3. *[If 2a-2f are all NO, go to 7.]*

4. What was its name?

   [If they were individually or jointly operated, complete a separate questionnaire(s) for each, copying as much as possible from this form. Go to 7.]

Name	Individual or Joint?		
_____	☐ NO	☐ YES ►	
_____	☐ NO	☐ YES ►	*[complete a questionnaire]*
_____	☐ NO	☐ YES ►	
_____	☐ NO	☐ YES ►	

SECTION EE - CONCLUSION

Item 1 — Partners name

Print or write plainly the names, addresses and phone of all other partners if this operation was a partnership. This partners must have been associated with the operator in 1987 and involved in the day-to-day decisions. "Silent" partners and other household members should not be listed unless they actively participated in the day-to-day decisions. Space is provided for two names with addresses. Additional partner names, addresses and phones should be listed elsewhere and noted.

Item 2 — Operates other land - list

When an individual name is selected, it is necessary to determine if this operator also made ANY day-to-day decision for another farm or ranch. To qualify as a farm or ranch, this operation must have:

Item 2a — Grown any crops - To qualify as a growing a crop, the respondent must have made the decisions on planting, caring for and harvesting the crop. Include as crops grown mushrooms, nursery stock and greenhouse crops. Exclude home gardens. Crops received on shares from land rented to someone else should not be considered grown by the land owner.

Item 2b — Had livestock or poultry - Include as livestock or poultry, all cattle, hogs, sheep, horses, mules, goats, chickens, turkeys, ducks, geese, bees, rabbits, mink or other fur bearing animals and fish that were raised commercially or used for home consumption. FFA and 4-H livestock projects for (cattle, hogs and sheep) must be included. Except for horses and ponies, exclude animals kept for pleasure use or as pets. Livestock dealers (speculators) should not be treated any differently than any other sampled livestock operator. Slaughter or packinghouses, auction barns, stockyards and order buyers have livestock committed for slaughter. These livestock should not be counted.

SECTION EE - CONCLUSION

Item 2c — Sold agricultural products - Include sales of crops, livestock, fish and other such products. Item 2c should be checked NO, if the respondent was a landlord who only sold agricultural products.

Item 2d — Received government payments - Include as government payments, payments received under various conservation programs. This item should be checked NO, if the respondent was a landlord who only received government payments.

Item 2e — Crops in storage - Check YES if any crops, regardless of ownership, were stored on the total acres operated. In the event the respondent was a landlord who rented out cropland, but had grain stored in facilities on his/her farmstead only, check YES.

Item 2f — Expenses for producing agricultural products- Check YES if the operator had any expenses for producing agricultural products on this other operation.

Item 3 — Non-farm

This item can only be reached if the answer to items 2a through 2f is all NO. If the answer to anyone item is YES, the enumerator should have gone to item 4.

Item 4 — Name

Record here the name of the other farm or ranch if they were individually or jointly operated. This item may be skipped if the operation was managed. Then go to item 7.

SECTION EE - CONCLUSION

Item 5 Operate other land - area

The operator of the operation described on the face page may have also been the operator of additional operational arrangements. This item is used to determine if the other operational arrangements were in effect in 1987. If the answer if YES, it will be necessary to assign another tract letter within the Resident Tract Record and complete a questionnaire for the additional arrangements. A new tract code should be assigned for each operation for which the segment resident serves as the operator. Each operating arrangement must involve land. Exclude joint arrangements with livestock only and no land. Land in landlord-tenant, cash rent or share rent arrangements is not considered a separate operation.

Item 6 Another person in household

This item makes sure that each person living in the household who operated a farm or ranch in 1987 will be assigned a separate tract letter. If YES is answered assign a tract letter and interview this person beginning with column 3 on page 2 of the Resident Tract Record.

EE conclusion — continued **EE**

5. *[Ask only if **AREA** sample; else go to 7]* In 1987, did you (the operator) operate land under any other name or land operating arrangement other than *[AREA-screening-5]*?

☐ YES ☐NO *[go to 6]*

5a. What was its name? _____

[Complete a new line on the Resident Tract Record for the additional operators.]

6. Did any other person living in this household operate a farm or ranch in 1987?

☐ YES -6a. What was his (her)name? _____

[Complete a new line on the Resident Tract Record for the additional operators.]

☐ NO

7. The results of this survey will be published in JULY. Would you like to receive a free copy?

☐ YES ☐ NO

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[Thank the respondent for his (her) cooperation then go to back cover.]

SECTION EE - CONCLUSION

Item 7 Release request

After completing the interview, ask the respondent if he would like to receive a copy of the results of the survey. The summary is expected to be published in July 1988.

BACK COVER

[check respondent]

- ☐ Operator/Manager 1
- ☐ Spouse 2
- ☐ Other *[enter name below]* 3
- ☐ Accountant/Bookkeeper *[enter name below]* 4

346

_____

_____

Enumerator name _____ Enumerator code

347

Date _____

[enter ending time] .....

348 _ _ _ _

quality rating

349

BACK COVER

Respondent Code

The respondent code is used to identify who was interviewed or how the information was obtained.

Circle the code (1-4) of who provided the information. If the respondent was not the operator or spouse, enter the name of the person providing the information.

After leaving the respondent and as soon as possible before the next interview, carefully review each section of the questionnaire and supplements. Questions and/or comments concerning the data, interview or respondent which would help the state office should be noted. When this is completed, sign, enter your code, if it has been provided to you, and date the questionnaire. Enter the military time the interview ended with the respondent. Be certain this is greater than the beginning time entered on the face page.

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CHAPTER 6
AGGREGATE EXPENDITURE
1987 FARM COSTS AND RETURNS SURVEY

CHAPTER 6
AGGREGATE EXPENDITURES

General

All costs of production versions; corn, peanuts, flue-cured tobacco, barley, cotton, and cattle on feed contain some questions which are identical to the expenditure question covered in Chapters 4 and 5. Other questions are an aggregate of the expenditure question(s) or specific to the COPS commodity. The face page through page 3 (screening) on all COPS versions is covered in Chapter 4 and Sections A and B are covered in Chapter 5. This chapter explains the sections on expenses in the COPS versions.



— 7 —

C SEED, PLANTS, FERTILIZER CHEMICAL AND CUSTOM WORK C

1. Now I need to know about some of the expenses this operation had in 1987 no matter who incurred the expense, such as landlord(s) or partner(s). Let's start with expenses for seeds and plants.

2. How much was spent on— — $ —

2a. seeds and plants, seed cleaning and seed treatments? *[exclude seeds, plants or nursery stock for RESALE]* 106

2b. fertilizers, lime and soil conditioners? *[dry, liquid, gas fertilizers, fertilizer-pesticide mixes, rock phosphates, manure, cottonseed hulls, sludge, gypsum, humus, etc.; include landlord(s) and partner(s) share and custom expense]* 107

2c. insecticides, herbicides, fungicides, nematicides, defoliants, fumigants and growth regulators excluding livestock chemicals *[include landlord(s) and partner(s) share and custom expenses]* 108

3. *[if 2b positive, ask]* What percent of the total fertilizer, lime and soil conditioner expenses was for—
[ask for each crop in left-hand column]

	fertilizer, lime, and soil conditioners %	pesticides and other chemicals %
barley?	282	284
corn (field)?	350	351
cotton?	352	353
peanuts?	354	355
rice?	356	357
soybeans?	358	359
sugarbeets?	360	361
tobacco, ALL?	362	363
wheat, ALL?	364	365
other crops, ALL?	366	367
	100%	100%

4. *[if 2c positive, ask]* What percent of the total pesticide and other chemical expenses was for—
[complete right-hand column]

5. Did this operation have any expenses for CUSTOM WORK done during 1987?
[Custom work is work performed by machines and labor hired as a unit; exclude contract labor; Include sawing, corn shelling, butchering, etc.]

— $ —

☐ YES - 5a. What did it cost? 368

☐ NO

SECTION C - SEEDS, PLANTS FERTILIZER, CHEMICAL AND CUSTOM WORK

General

With Section C, begin recording expenses. It should be emphasized that we want the total OPERATION expenses including landlord(s) and partner(s) unless indicated otherwise.

Landlord expenses may be recorded in each section or they may be recorded in Section O. BUT THEY MUST BE INCLUDED to obtain a total expense for the sampled operation. Some questions ask for actual expenses and others ask for percents. EXPENSES should be recorded as accurately as possible for the total. Respondents may need to consult records. Percents may be the respondent's BEST ESTIMATE. Respondents should not spend time calculating percents but can report an estimate.

Item 2a

Expenses for seeds and plants

Operations (including landlord(s) and partner(s) share) that had expenses for either the purchase of seeds and plants or seed treatment and cleaning of seeds should have a positive answer here. Value of homegrown seed is not an expanse, but if the homegrown seed was cleaned, the respondent would have an expense for this item. Seeds, plants or nursery stock for RESALE should be EXCLUDED from this item. If the operator or landlord had no seed expense during 1987 go to Item 2b.

Include in seed expenses:

(1) FIELD CROPS AND SMALL GRAINS - Include the purpose cost for these seeds; exclude those purchased for eventual distribution and resale, for example a seed corn dealer.

(2) LEGUMES INCLUDING LENTILS, DRY BEANS AND PEAS, GRASSES, SILAGE AND FORAGE - Purchases of these seeds may occur even with no planted acres recorded in Section B. Legumes include clovers and alfalfa.

SECTION C - SEEDS, PLANTS, FERTILIZER, CHEMICAL AND CUSTOM WORK

(3) OTHER CROPS, SUCH AS FRUIT, VEGETABLES, NURSERY AND GREENHOUSE PRODUCTS - Record only those purchases for this operation. Commercial production or farm use of fruit and nut trees, grape vines and fruit cane are to be included. Tree seedlings for reforestation and trees or shrubs for windbreaks all qualify as farm expenditures. Purchases for landscaping the farmstead do not qualify as a production expense. Flowers, vegetables, bulbs, nursery crops and foliage plants must be purchased for commercial purposes in order to be recorded. Items purchased for resale must be EXCLUDED.

(4) OTHER SEED EXPENSES - Expenses for cleaning, bagging, delinting, scarification, storage, testing and so on are usually associated with the production and use of homegrown seeds and plants. Expenses for these services are to be included for both homegrown and purchased seeds. Record the expenses for materials required to inoculate or treat seeds or plants. Fertilizer nutrient solutions are to be recorded in Section D, Item 1a.

Item 2b Fertilizer, lime and soil conditioners expenses.

If fertilizer-pesticide combination were purchased include the cost here. Pre-emergence herbicides are often mixed with fertilizer and sold as one product. Include those here. Trace elements such as zinc, copper and so on are included in this item. Include the total cost of all fertilizer purchased under the Agricultural Conservation Program even though all or part was paid by the government. Include expenditures for lime and all soil conditioners-manure, cottonseed hulls, sludge, gypsum, sulfur, marl, peat and other conditioners. If these were applied under the Agricultural Conservation Program, include the total expense even though all or part was paid by the government.

SECTION C - SEEDS, PLANTS, FERTILIZER, CHEMICAL AND CUSTOM WORK

Item 2c Crop chemicals excluding livestock.

Include pesticides, herbicides, fungicides, defoliants, nematicides, fumigants, growth regulators, and rodenticides. They may be used on crops, pastures, seeds, crop storage buildings or seed beds for the control of all types of weeds, diseases, insects, rodents and other predators. Include the total expense for all sprays, dusts, granules, or other materials. Include application costs here if custom applied. Exclude chemicals used for livestock.

INCLUDE:

(1) Expenses for materials applied to control or prevent the growth of weeds or brush.

(2) Expenses for chemicals to control insects on crops.

(3) Carrier materials such as fuel oil, solvents or wetting agents mixed with pesticides.

(4) All government program pesticides applied to crops or buildings even through all or part was paid by the government.

(5) Materials used for controlling fungi and nematodes.

(6) Materials to accelerate drying or regulate plant growth.

(7) Pesticides used to control rodents, birds and other predators.

SECTION C - SEEDS, PLANTS, FERTILIZER, CHEMICAL AND CUSTOM WORK

Item 3 Percent of fertilizer

If item 2b is positive ask what percentage of the expense was for each of the pre-listed crops. If a crop is not pre-listed include it in other crops. The pre-listed crops are all COPS commodities and this will start a series to update the fertilizer expanses in years that commodity is not enumerated.

Item 4 Percent of chemicals

If item 2c is positive ask what percentage of the expense was for each of the pre-listed crops. If a crop is not pre-listed include it in other crops. The pre-listed crops are all COPS commodities and this will start a series to update the chemical expenses in years that commodity is not enumerated.

Item 5 Screening for custom work

This item screens for custom such as land tillage, planting (seeding, drilling and so on) or harvesting (combining, digging, cutting and so on). Other examples would be sawing, corn shelling or butchering. The custom work could have been hired by the operator or his landlord(s) on the total acres operated (ref. Section A). Custom work means work performed by machines and labor which were hired a unit.

EXCLUDE:

(1) Contact labor, land improvement and development including soil conservation work and machine hire for fertilizer or pesticide applications.

(2) Leasing of autos, trucks, tractors or other equipment.

SECTION C - SEEDS, PLANTS, FERTILIZER, CHEMICAL AND CUSTOM WORK

Item 5a Custom work - expense

Record the total cost to this operation of the custom work. Hauling charges should be included if they were a part of the custom charge. Otherwise, they should be reported in Section D - OPERATING EXPENSES, Item 6b.

If an operation was performed a number of times on the same acres, for example, cultivation or haying, include the acres covered each time in the acres column.

For hay, forage or straw, all of the operations should be considered as one operation whether they were all performed with one custom hire agreement or with multiple agreements. The acreage should be summed only for 1st crop, 2nd crop, 3rd crop and so on. Do not sum this acreage for moving plus conditioning plus swathing, plus baling, and so on.

For example:

(1) One hundred acres corn were cultivated twice at $5.00 per acre for a total of $1,000.

(2) One hundred acres of hay were mowed, conditioned, raked and baled for each of the three crops. The cost was $25.00 for each crop. You would calculate--

Acres: 100 X 3 = 300 acres
Expenses: 300 acres X $25.00 = $7,500

— 8 —

D OPERATING EXPENSES D

1. Next, I'll be asking about supplies and equipment that could have been used for personal (non-farm) use or farm use. We are interested ONLY IN THE FARM SHARE of these expenses. *["FARM SHARE" should be the same as the operator interprets it for tax purposes.]*

	— $ —
1a. What was this operation's TOTAL expenses for fuels and motor oils including those used for drying?	109
1b. repairs and parts for motor vehicles, machinery and equipment (such as overhauls, tuneups, tubes, tires, and repair of livestock equipment)?	110
1c. accessories for motor vehicles and machinery (such as radios, CBs, hydraulic cylinders, tractor cabs, air conditioners)?	111
1d. farm shop power equipment (such as attachments and accessories such as drills, welders, grinders, hoists, compressors, saws)?	112
1e. other farm supplies and hand tools (such as baling wire and twine, wrenches, shovels, forks, barrels, bolts, rope, bags)?	113
1f. utilities? *[excluding irrigation water and electricity for irrigation]*	369
1g. interest and service fees on farm land, buildings, and other real estate debt? *[include operator's dwelling if on operation]*	146
1h. interest and service fees on operating loans? *[include service fee on CCC loan redemption]*	147
1i. registration and license fees for motor vehicles? *[farm share only]*	148
1j. office equipment purchases (such as furniture, computers)?	149
1k. general business expenses such as accounting fees, legal fees, travel, memberships, farm management, soil testing, magazines, office supplies?	150

2. Were any damages paid for loss or injury connected with this operation in 1987 which were not covered by insurance?

☐ YES ☐ NO - *[go to 3]*

2a. How much was it?	151

SECTION E - OPERATING EXPENSES

General

This section obtains expenditures for general farm or ranch operating expenses. Some of the items may be used for both non-farm and farm use. You should report only the FARM share. If the same vehicles and machinery were used for custom work or machine hire and on this operation, do not attempt to subtract fuel used for custom work. Income from custom work and machine hire will be reported as farm-related income in Section P - SALES AND INCOME, 16a. However, if machinery was used only for custom work so that separate books were kept and income from custom work recorded as from an off-farm business SECTION CC - MISCELLANEOUS, 4a, then exclude fuel and oil costs for custom work from these items.

Item 1a

This item asks for the TOTAL expenses for fuels and motor oils. Include those used for crop drying. This is an expense figure and should be reported as accurately as possible. This expense should be net of Federal Excise fuel tax refund, if claimed.

INCLUDE:

(1) All fuels used in autos (FARM SHARE only), trucks (FARM SHARE only), tractors, self-propelled machinery, (combines, swathers, etc.), irrigation pumps, elevators, chain saws, and so on.

(2) Fuels for heating farm buildings.

(3) Fuels used to heat a farm office.

(4) Fuels used for drying or curing crops.

(5) All LP (Liquid Petroleum, propane and butane) and natural gas used in internal combustion engines.

SECTION D - OPERATING EXPENSES

(6) Include motor oils, grease, transmission fluid, hydraulic fluids and lubricants purchased for motor vehicles and machinery whether delivered or purchased off the operation.

EXCLUDE:

(1) Petroleum products used as a carrier with pesticide sprays. This should have been included in Section C - SEEDS, PLANTS, FERTILIZER, CHEMICAL AND CUSTOM WORK, Item 2c.

(2) Petroleum products used in motor vehicles for custom hire or non-farm use and in other engines or machines that were used for non-farm purposes.

(3) Fuels used for heating or cooking in the operator's residence.

(4) Fuel for tractors used strictly for custom work should be excluded.

Record the total farm share percent purchased in 1987. Diesel fuels are used predominantly in tractors or vehicles which would be 100% farm use, but the respondent may have other diesel engines or motor vehicles.

Fuel oil and kerosene are primarily heating fuels. Quantities purchased for use exclusively in the operator's residence should be excluded in the percent. Other fuels, such as coal and wood, are primarily purchased for heating farm buildings or for drying crops. These should be included. Aviation fuel would also be reported here.

SECTION D - OPERATING EXPENSES

Item 1b Repairs and parts

Record the total FARM SHARE expenses for materials, labor, parts and services for repair and upkeep of farm motor vehicles and equipment. Family use expenses may be included if they are combined in the operator's records. Include the services and parts such as overhauls, tuneups, tubes, tires and repair of livestock equipment as well as the following:

(1) Brake adjustment and exhaust system repairs.

(2) Front end alignments, steering adjustments, wheel balancing and replacement of shock absorbers.

(3) Replacement or repair of carburetors, fuel pumps, fuel injector systems, water pumps, electrical system, clutch and transmissions, body work, frame repairs, painting and glass replacement.

(4) Major engine overhauls and minor tune-ups, valve and ring jobs.

(5) Replacement parts for all machinery including disk blades, cultivator sweeps and shovels, sickles, guards, and baler parts.

(6) Repair of livestock equipment.

Item 1c Accessories

Accessory equipment includes items purchased in addition to the basic unit. Accessories include hitches, wheel weights (including fluid) mirrors, radios, hydraulic cylinders, tractor cabs, air conditioners and electric sensor systems.

SECTION D - OPERATING EXPENSES

Item 1d — Farm shop power equipment

Farm shop power equipment includes all shop equipment requiring fuel or other energy source to operate. Include attachments and accessories, power saws, battery chargers, drills, welders, grinders, hoists, sanders, compressors and chain saws.

Item 1e — Other farm supplies and hand tools.

Record miscellaneous equipment and hand tools purchased for farm use. Include baling wire and twine, carpentry, plumbing, hand tools, wrenches, ag bags, pliers, spades, shovels, scoops, forks, fencing tools, fuel tanks, barrels, bolts, nails, rope, chain, polyethylene film, canvas, welding rods, oxygen and acetylene gas and other supplies and accessories not included elsewhere. Also include similar items which are generally reusable and are considered equipment or tools. Repair of items is also included. Other items would include mechanic's tools, ladders, jacks, hoists, winches, manually operated grinders, scales, tarpaulins, extension cords, axes, picks and bolt cutters.

Item 1f — Utilities

Utility and business expenses should be FARM SHARE only. The farm share is the percentage the respondent will use to calculate Schedule F income tax deductions. EXCLUDE LANDLORD'S SHARE.

EXCLUDE:

(1) Electricity for farm (or ranch) and home, and irrigation. Exclude electricity for irrigation. Electricity is usually metered and billed separately.

SECTION D - OPERATING EXPENSES

(2) Telephone (farm share only) expense which was only for this operation. Include both local and long distance.

(3) Water expense not for irrigation which will be included in 3a.

Item 1g — Interest and service fees on land and building.

Include interest on farm business loans and mortgages, land contracts and other loans secured by real estate. Sources of these loans include commercial banks, insurance companies, Federal land banks and individuals. Do not include interest on farm real estate debts for land that was not part of this operation. Exclude interest on the operator's residence if it was not located on the operation.

Item 1h — Interest and service fees on operating loans.

Include finance charges for operating loans, including loans for motor vehicles (farm share), remodeling, machinery, livestock, feed, fertilizer, seed and other items. Do not include payments made on the principal loan amount.

Item 1i — Registration and license fees for motor vehicles.

Record the farm share for all motor vehicle registration and license fees paid by this operation.

Item 1j — Office equipment.

Include all capital purchases of farm office equipment.

SECTION D - OPERATING EXPENSES

Item 1k General business expenses

INCLUDE:

(1) fees paid to extension service workers, accountants, and others for keeping farm records.

(2) fees paid for preparing income tax returns.

(3) travel expenses such as lodging, meals, and parking incurred while purchasing or selling commodities for farm association or cooperative business, attending fairs at which the respondent's farm products were exhibited and other farmer ranch business.

(4) Postage and telegrams for farm business.

(5) Expenses for title searches, abstracts, recording deeds and mortgages, court costs and other legal expenses for the land operated as well as fees paid to attorneys in connection with farm or ranch business.

(6) Charges for permits and licenses obtained in 1987 for production and marketing of commodities produced on the land operated.

(7) Fees paid on the basis of sales or production to marketing associations or government agencies (Federal, state or local) for the promotion of sales or other specific purposes.

(8) Registration of purebred animals, charges for sales promotion or advertising.

SECTION D - OPERATING EXPENSES

(9) Farm management expenses including books on crop production and livestock feeding, papers and magazines (Daily Drover Journal, Farm Journal, Farmer/Stockman, and so on), market reports, farm news letters and agricultural bulletins. Report only actual 1987 expenditures. If a subscription was renewed for two years starting in 1987, include the total expense. If a two-year subscription was paid for in 1986, do not include any expense.

(10) Real estate agent's commission and other direct selling or buying expenses.

EXCLUDE:

(1) Wages for farm workers who do bookkeeping in addition to their regular work or regularly hired bookkeepers and other clerical workers if hired primarily to keep farm records. (THE SALARY OF THESE PEOPLE WILL BE RECORDED IN SECTION F, LABOR AND WAGES.)

(2) Parcel post or expenses charges for marketing agricultural products. (THIS SHOULD BE RECORDED IN 6c).

(3) Gasoline or vehicle operating expenses. (RECORD IN 1a and 1c).

(4) Taxes paid which were levied for general purposes, fees included with marketing expense and check-off dues (REPORTED IN 6c).

Items 2 and 2a

Damages for loss or injury.

Damages not covered by insurance are those expenses paid by the operator to settle claim of liability for which no insurance coverage applied.

SECTION D - OPERATING EXPENSES

Item 3a-3b Irrigation Costs -

Irrigation costs for water and other fees for irrigation should be recorded here.

Items 3c-3d Insurance

If an insurance premium paid during 1987 provided more than one year's coverage, include the total expense. Premiums paid in earlier years that provided coverage for 1987 are not to be included.

Motor vehicle, liability and blanket insurance policies are generally all purpose and cover more than just the farm share. Therefore, it may be necessary to have the operator estimate the actual amount considered the farm share.

D operating expenses - continued D

3. What were this operation's **FARM SHARE** expenses for—

		— $ —
3a.	**IRRIGATION** water and fees?	152
3b.	electricity for IRRIGATION?	145
3c.	crop and livestock insurance?	370
3d.	all other insurance, such as the FARM SHARE of motor vehicle, liability and blanket insurance policies?	153
3e.	TOTAL real estate and property taxes?	154
	(1) What percent was for REAL ESTATE only?	155 %

4. During 1987, did this operation have any expenses for the **renting** and **leasing** of livestock?

☐ YES ☐ NO - *[go to 5]*

		— $ —
4a.	How much did it cost?	156

5. Did this operation receive, purchase, sell or redeem any PIK (Payment-in-Kind) certificates in 1987? *[exclude landlord's and/or contractor's shares]*

☐ YES ☐ NO - *[go to 6]*

5a. What was the—

(1)	face value of certificates on hand January 1, 1987? +	157
(2)	face value of certificates received in 1987? *[issued to operation by ASCS]* +	158
(3)	face value of certificates purchased in 1987? +	159
(4)	TOTAL price paid for certificates purchased in 1987?	160
(5)	face value of certificates sold for cash? —	161
(6)	TOTAL amount received for certificates sold?	162
(7)	face value of certificates used to redeem commodity loans? —	163
(8)	face value of certificates disposed of by other methods? —	164
(9)	Then the face value of certificates on hand December 31, 1987 was *[(1) + (2) + (3)—(5)—(7)—(8)]*. Is that correct? *[If not, make corrections]*	165

SECTION D - OPERATING EXPENSES

Data are available from Federal Crop Insurance for premiums paid, but reliable data are not available for other types of insurance premiums paid. By asking amount of Federal Crop Insurance the respondent paid and other crop insurance, we obtain the ratio of one to the other to obtain another indication of total insurance expenditures. Other crop insurance will include coverage for hay and grain in storage facilities.

Losses to the farm operation due to disasters are not recorded. The costs involved in crop or livestock production are already accounted for in other sections.

Item 3e — Real estate and property taxes.

Include taxes on farm real estate, machines, livestock, autos (farm share) and other property taxes. Report taxes paid in 1987, even if they were levied in another year. Include all partners share of taxes where a partnership is reported.

Item 3e (1) — Percent for real estate only.

Record the percent of Item 3e which was for real estate only.

Items 4 and 4a — Renting or leasing livestock.

Include total expense for the rental or leasing of any livestock by this operation. Rental fees paid for bees and bee hives are included in this item.

SECTION D - OPERATING EXPENSES

Item 5 and 5a

PIK (Payment-in-Kind)

The Food security Act of 1985 authorized certain program payments to be made on a noncash basis. Accordingly, producers earning payments under the acreage reduction and land diversion, conversation reserve, and emergency food programs may receive generic commodity certificates also known as PIK certificates.

An initial holder of a commodity certificate must choose one of the following options:

--Sell or transfer the certificate to another producer or commercial entity,

--Use the certificate to redeem CCC regular commodity, reserve or special producer storage loans, or

--Return the certificate to the issuing county ASCS office for cash.

Subsequent holders of commodity certificates may either:

(1) sell or transfer the commodity certificate,

(2) use the certificate to redeem CCC loans, or

(3) exchange the certificate for commodities from CCC inventory.

All certificate holders have until the expiration date shown on the certificate to sell or transfer their certificates by endorsing them on the back. Producers earning certificates on or after November 17, 1986, may exchange them for a check at their county ASCS offices anytime during the last three months before the certificates expire. Certificates earned before that date could only be exchanged for cash during the business days following a specific date shown on the certificate.

SECTION D - OPERATING EXPENSES

Producers may use certificates to redeem outstanding CCC loans anytime before the expiration date.

When valuing the certificate for loan redemption, the face value of the certificate is converted to a bushel equivalent based on terminal market prices which are adjusted for location. Consequently, whether market prices increase or decrease, the producer receives a quantity of commodity equivalent to local market values.

This item uses a "balance sheet" approach to obtaining information on this operation's participation in PIK. Items (1) asks for the face value of certificates on hand at the first of 1987. To this is added the face value of certificates received (issued by CCC) and purchased in 1987. Items (5), (7) and (8) subtract the face value of the certificates disposed of (sold, redeemed or by some other method) in 1987. The result (9) should be the face value of the certificates on hand at the end of 1987. For a partnership, the certificates are usually issued to the partnership.

D operation expenses - continued D

6. How much was spent on—

		— $ —
6a.	marketing containers? *[baskets, boxes, crates, etc.]*	166
6b.	transportation to deliver items to this operation, to market or between farms (ranches)? *[Do not record if included previously]*	167
6c.	marketing or storage charges *[including CCC]* such as drying, cleaning, CHECK-OFFs or deductions, commissions, ginning, inspections, allotment rentals or special handling?	371

SECTION D - OPERATING EXPENSES

Item 6a Marketing containers

The containers may have been purchased for planting, growing, harvesting or marketing of any commodity. Include baskets, boxes, crates, etc. Containers are frequently provided by a marketing association or cooperative on a rental or per unit fee basis. Charges for usage or rental fees to a buyer, shipper, or packer are to be included.

Nursery and greenhouse containers may be purchased for nursery production or for sale to consumers. Exclude those purchased for direct resale to consumers. Include only those used in production although they may eventually be resold with the plant.

Item 6b Transportation

All transportation charges for the operation should be reported here. Include transportation to market as well as transportation between farm or ranch parcels. Many farmers will report the net income or livestock and crops. In Section P - SALES AND INCOME, the gross value of sales will be reported and actual transportation charges should appear here. MILK HAULING CHARGES WILL BE ADDED HERE. Also, include here the expenses for transportation of feed, seed and fertilizer to the operation if not reported in any earlier section.

Item 6c Marketing or storage charges

Include all marketing and storage expenses here. Storage expenses of all kinds should be reported here. If the commodity was not sold, but later returned to the operation, the expense for storage should be included here. Also, record expense involved in marketing agricultural products. Expenses for marketing are frequently deducted from the final payment and the operator does not have to issue a payment for the service. Commission fees,

SECTION D - OPERATING EXPENSES

storage fees, inspection fees and check-off fees will be identified on the payment voucher along with the gross the net receipts. BE CERTAIN TO PROBE FOR THOROUGHNESS IN OBTAINING THESE HIDDEN COSTS.

In field crops such as cotton or tobacco, the allotments may be rented or leased from other persons not utilizing their full allotment. These allotment rentals should be considered a payment for the privilege of marketing the crop. Rental of land may or may not be associated with the allotment. Land rental fees should be recorded in Section A.

Perishable products such as fruits and vegetables may require refrigeration or icing during storage or transportation. These expenses should be considered marketing expenses.

When promotion check-off fees are automatically reduced from payments for sale of such commodities as soybeans, hogs or milk the fees is INVOLUNTARILY charged and should be considered a marketing expense. Operations also make voluntary payments for marketing and production programs. These VOLUNTARY payments are to be considered a general farm business expense in Item 1k.

F LABOR and WAGES F

1. How many HOURS PER WEEK did you (the operator) average working on this operation during each month of 1987 with or without pay?

	(1) OPERATOR — hours per week —		(2)		(3) ALL OTHER UNPAID Workers — hours per week —		(4)	
Jan.	114	July	115		Jan.	116	July	117
Feb.	118	Aug.	119		Feb.	120	Aug.	121
March	122	Sept.	123		March	124	Sept.	125
April	126	Oct.	127		April	128	Oct.	129
May	130	Nov.	131		May	132	Nov.	133
June	134	Dec.	135		June	136	Dec.	137

2. What percent of the total hours in 1987 was spent on corn? ..... 372 %

3. Did anyone else, such as a household member, neighbor or partner, do farm or ranch work in 1987 on this operation WITHOUT PAY?

☐ YES - *[complete cols. 3 and 4]* ☐ NO - *[go to 5]*

4. What percent of the total unpaid hours in 1987 was spent on corn? ..... 373 %

5. During 1987, did this operation use any contract labor? *[Contract workers are paid by a crew leader, contractor, buyer, processor, cooperative, or other person having an oral or written agreement with a farmer or rancher.]*

☐ YES ☐ NO - *[go to 5]*

— $ —

5a. What were the total costs for this labor? 138

5b. What percent of these *[Item 5a]* costs was only for corn? ..... 374 %

SECTION F - LABOR AND WAGES

Item 1 Average hours worked per week operator.

This item asks for the average hours per week for each month of 1987 this operator did farm or ranch work, with or without pay, on this sampled operation. Farm or ranch work should include management, field operations, travel, repairs, and so on.

For Example:

Month	Average Days/Week	X	Average Hours/Day	Hours/Week
Jan. 1987	4	X	8	32

Item 2 Average hours worked per week-enterprise.

In the 114 code box, 32 would be entered. Obtain the percent of the hours in item 1 that would be considered work or the respective crop requested-field corn, peanuts, flue-cured tobacco, barley, cotton or cattle on feed.

Item 3 Average hours worked per week - other workers.

The same information as in Item 1 is required in Item 2 for anyone else, such as another household member, neighbor or, if a partnership, a partner. If during August, 1 brother worked about 10 hours per week and 1 uncle worked about 5 hours per week, enter 15 in code box 121. If someone worked 40 hours total in a month, report 10 hours per week.

Item 4 Average hours worked per week-enterprise.

Obtain the percent of the hours in Item 3 that would be considered unpaid work on the respective crop requested-field corn, peanuts, flue-cured tobacco, barley, cotton or cattle on feed.

SECTION F - LABOR AND WAGES

Item 5 — Screening for contract labor.

Contract workers are paid by a crew leader, contractor buyer, processor, cooperative or other person having an oral or written agreement with a farmer or rancher. If the respondent had any of this labor in 1987, check the yes box. Include workers hired to harvest fruits, vegetables, potatoes and berries and other agricultural work which was performed on a contract basis by a contractor, a crew leader or a cooperative. Exclude buildings and land improvements. These are reported in Section N1 - (FARM RANCH) and LAND IMPROVEMENTS and MAINTENANCE. Include work done by any custom operator hired on contract that does not provide his own machinery.

Item 5a — Costs of contract labor.

Record the TOTAL costs of contract labor which qualifies based on Item 5.

Item 5b — Percent of contract labor costs-enterprise.

Obtain the percent of the costs in item 5a that was charged to the specific enterprise-field corn, peanuts, flue-cured tobacco, barley, cotton or cattle on feed.

F labor and wages - continued F

6. During 1987, did this operation have anyone on the payroll to do agricultural work? *[include full-time and part-time workers, paid family members, and hired managers]*

☐ YES - 6a. What was the **peak** number, including paid family members, on the payroll on any one day? 139

☐ NO - *[go to I]*

7. What were the total **cash wages**, including cash bonuses, paid to all workers, excluding contract labor? (Include payments to family members and corporate officers, but exclude wages paid for housework, custom work, and social security on the owner-operator.)..... — $ — 140

7a. What percent of the *[item 7]* costs was only for corn? ..... 502 %

8. What percent or how much of the total cash wages *[item 7]* was paid to—

	— % —	or — $ —
8a. yourself (the operator)?	141	142
8b. other household members?	143	144

9. Were there any expenses for fringe benefits (such as insurance, workman's comp, social security taxes)?

☐ YES ☐ NO - *[go to 10]*

— $ —

9a. How much? 375

10. Were any **NON-CASH** benefits provided to the paid workers such as meals, or other food, housing, fuel, vehicles for personal use, utilities, pasture or feed?

☐ YES ☐ NO - *[go to I]*

10a. What was the cash value? 376

SECTION F - LABOR AND WAGES

Item 6 Screening for agricultural workers.

Include agricultural workers on the payroll regardless of where they worked. Persons on paid vacation or sick leave should be included. If the operator also provides an agricultural services under the same name as the face page, include the service workers.

AGRICULTURAL WORK is defined as:

- work done ON this operation in connection with the production of agricultural products, including nursery and greenhouse products and animal specialties such as furs, fish, apiaries, etc.

- work done OFF this operation such as trips to buy feed, deliver products to local market or to handle other farm-related business.

- repairs of farm buildings and machinery when performed along with the types of work specified above.

- bookkeeping by a spouse.

- managing a farm (or ranch) for a cash salary.

- meal preparation for work crews.

NON-AGRICULTURAL WORK is defined as:

- housework, such as cooking and homemaking, by household members performed within the operator's home.

- plumbing, carpentry or mechanical work when the person doing the work derived most income from sources other than agricultural work.

SECTION F - LABOR AND WAGES

- operating a filling station, store or other such non-agricultural enterprise even though located on the operation.

- work involved in training, boarding or renting animals such as horses and dogs. Also, exclude caring for research animals.

- work at a roadside stand unless the operator does not keep a separate set of financial records and produces at least fifty percent of the products sold at the stand.

Item 6a — Peak number of workers.

This item is used to screen operators for the Farm Labor Survey.

Item 7 — Cash wages

Include cash wages, incentives, bonuses and percent of profits paid to workers doing agricultural work on land the respondent operated in 1987. Include the wages paid to family members, corporate officers, salaries of hired managers and EMPLOYEE share of Social Security taxes if withheld from salary. Exclude housework, contract labor or Social Security for the operator if the farm or ranch operation was not incorporated. Operators who had more than 500 work hours of farm labor in any quarter during 1986 are affected by the minimum wage laws. Minimum wage for agricultural workers during 1987 was $3.35 per hour. Include the operator's salary (if any) but exclude all cash sales. Money taken by the operator on a "draw" is to be excluded.

SECTION F - LABOR AND WAGES

Item 7a — Percent of cash wages - enterprise

Obtain the percent of the cash wages in item 7 that was charges for the specific enterprise-field corn, peanuts, flue-cured tobacco, barley, cotton or cattle on feed.

Items 8a and 8b — Cash wages - operator and other household members.

In Item 8 record the percent or actual dollars paid to the operator and other household members. This will allow further analysis into wage rates.

Items 9 and 9a — Cash fringe benefits - as expense to employer.

Agricultural workers who are paid $150 or more in cash wages during the year or who work 20 or more days during the year are subject to Federal Insurance Contribution Act (FICA) taxes. These are known as social security taxes. Employers of such workers must pay a portion of the tax and may withhold the employees portion of taxes from wages. Record only the employer's share in Item 7b.

Agricultural workers are covered under the Federal Unemployment Tax Act (FUTA) if the employers must meet the following criteria:

(1) $20,000 or more wages were paid to all agricultural labor in any quarter during 1986 or 1087.

(2) If 10 or more workers hired on any given day within 20 different weeks of 1986 or 1987.

Items (1) and (2) is the minimum coverage required by Federal Statute. In some states, some employers of agricultural workers may employ fewer than 10 workers and pay less than $20,000 in wages, but still be required to pay a state unemployment tax. This expense should be included here.

SECTION F - LABOR AND WAGES

Item 10 and 10a

Cash value - other benefits that were not a cash expense but were still a form of payment.

Heating fuels, transportation, phone, electricity, clothing and furniture should be valued at the cost to the operator. Food produced on the farm and furnished to paid workers should be valued at current local prices. Exclude for family members living at home.

— 13 —

LIVESTOCK and POULTRY

1. Did this operation have any expenses for livestock feed or grazing, bedding, feed processing, custom feeding, veterinary services or purchases of livestock equipment or supplies?

☐ YES ☐ NO - *[go to 3]*

2. How much was spent for—

	— $ —
2a. all purchased feed items, such as grains, hays, forages, mixed or formula feeds, concentrates, supplements, salt and minerals?	168
2b. custom feeding of livestock, pasturing or grazing of livestock on **private** land, custom feed processing, bedding or litter? *[if Western state, exclude fees reported in A-1c]*	377
2c. veterinary services or miscellaneous livestock and poultry medical services and supplies? *[include branding, castrating, caponizing, performance testing, AI, breeding fees, etc.]*	169
2d. livestock and poultry chemicals? *[sprays, dips, dusts, udder cleaners]*	170
2e. purchases of capital equipment for livestock and poultry placed on a depreciation schedule?	171

3. During 1987, did this operation buy any beef or dairy cattle or calves, hogs, or sheep?

☐ YES ☐ NO - *[go to 5]*

4. What was bought and what was the TOTAL expense for each species? *[Check each species and record total expense.]*

	— $ —
☐ **BEEF** cows, bulls and replacement heifers for the breeding stock	172
☐ **DAIRY** cows, bulls and replacement heifers for the breeding stock	173
☐ calves and all OTHER cattle	174
☐ sows, boars, and replacement gilts for the breeding stock	175
☐ all OTHER hogs and pigs	176
☐ ALL sheep and lambs *[exclude wool]*	177

CHAPTER 6
AGGREGATE EXPENDITURES

SECTION I - LIVESTOCK AND POULTRY

Item 1 — Purchases of feed, custom feeding, pasturing, custom processing of feed, bedding or litter.

This question screens for livestock expenses such as feed, grinding, custom feeding or grazing, bedding, veterinarian services and purchases of livestock equipment and supplies. Expenditures made by either the operator or his landlord(s) should be included in this Section.

Item 2a — Total expenses for feed items.

Total expenses for feed should include expenditures for all feed grains, hay, forages, mixed or formula feeds, concentrates, supplements, premixes, salt, minerals, animal by-products and all other feed additives and ingredients.

INCLUDE:

Barley, corn (field), oats, sorghum, wheat - Report all grains whether whole, rolled, cracked, ground and so on.

Hays and forages - Report all legumes, grassed, mixtures and grains cut and dried for use as animal roughage. Silage and green chop include all crops harvested without drying to be used as animal roughage. Hay cubes, wafers and alfalfa pellets are considered forage.

Complete rations and formula feeds - Include all commercially prepared feeds used for feeding dairy, beef, hogs, sheep, horses, broilers, turkeys and other poultry. These items include only those products that require no additional ingredients before feeding.

SECTION I - LIVESTOCK AND POULTRY

Protein meals and concentrates - Include all single ingredient items consisting of oilseed proteins (soybean, cottonseed, sunflower seed, linseed and so on), animal proteins (fish meal, milk by-products) and grain proteins (gluten, brewers).

Supplements - Also known as multiple ingredients, include feeds that require only the addition of feed grains and roughage to make a complete ration. This supplement feed will also contain micro ingredients.

Other feeds - Include all remaining feed ingredients and additives such as salt, minerals, molasses, bone meal, bran, middling, hominy, citrus pulp and beet pulp.

Item 2b Custom feeding, pasturing, feed processing, bedding.

Include the expenses paid to another operation for the feeding or livestock on a per head or gain basis. Do not include rental on a per acre basis; this should have been record in Section A - LAND OPERATED, RENT PAID, Item 1.

Include expenses for pasturing or grazing of livestock on PRIVATE land on a fee per head, AUM or gain basis. If you are in a Western state, do not include fees already reported in Section A, item 1c.

Custom processing, grinding and mixing of feed expenses are to include only the cost of the machine and services, not the cost of the feed or other ingredients. These are reported in their respective items previously.

Expenses for all types of livestock litter or bedding are reported here. This may include straw, sawdust, wood ships, corn stalks or spoiled hay.

CHAPTER 6
AGGREGATE EXPENDITURES

SECTION I - LIVESTOCK AND POULTRY

Item 2c — Veterinary services and supplies

Include all fees paid to a veterinarian for services or supplies. Include all other miscellaneous livestock and poultry medical services and supplies regardless or where they were purchased.

Item 2d — Livestock and poultry chemicals

Include the expenses for all sprays, dips, dusts, udder cleaners and other chemicals purchased for use on livestock.

Item 2e — Livestock equipment

All major livestock or poultry equipment, milkers, feeders, cleaners and so on are grouped here for one total. These items are usually placed on a depreciation schedule. Equipment purchased for personal or pleasure use, such as rodeo equipment, is not a farm or ranch production expense and should be excluded.

Item 3 — Purchases of cattle, hogs or sheep

This item screens for any purchases to be reported in item 4. The respondent should volunteer the species purchased, a check entered and a total obtained at that time or after all species have been checked. Purchases of livestock and poultry during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the purchases. For large integrated farms that do not actually purchase the livestock, but obtain them from the previous phase, obtain an estimate of the value of the livestock moving through the operation.

SECTION I - LIVESTOCK AND POULTRY

Item 4 Beef and dairy cows, calves, hogs, and sheep.

INCLUDE:

(1) Include BEEF animals that are to be used as breeding stock or herd replacement for this operation regardless of age.

(2) Include DAIRY animals that are to be used as breeding stock or herd replacement (milk production) for this operation regardless or age.

(3) Any cattle or calves not purchased for breeding herd replacement or expansion should be reported in CALVES AND ALL OTHER CATTLE. Include purchases of cattle placed in a feedlot there.

(4) Include all GILTS, SOWS AND BOARS purchased for breeding purposes.

(5) IN ALL OTHER HOGS AND PIGS record the purchase expenses of all other hogs and pigs such as feeder pigs and market hogs.

(6) IN SHEEP AND LAMBS record all purchases whether they are to be used for the breeding herd or not.

livestock and poultry — continued

5. During 1987, did this operation buy any poultry?

☐ YES ☐ NO - *[go to 7]*

6. What was purchased and what was the total expense for each species?
[Check each species and record total expense.]

	— $ —
☐ broilers, fryers, and other meat-type chicks.....	178
☐ turkeys poults *[for slaughter and breeding]*.....	179
☐ all OTHER poultry (including layers and started pullets) *[record ducks and game birds below in 7]*.....	180

7. Were any livestock or livestock products such as horses, rabbits, goats, bees, fish, mink, eggs, wool, milk, ducks or game birds purchased? *[may be for resale]*

☐ YES ☐ NO - *[go to 8]*

7a. What was the TOTAL expense?..... 181

8. Did this operation have a contract to custom feed or produce livestock, poultry, or eggs for someone else during 1987?

☐ YES ☐ NO - *[go to J]*

8a. What was the name and address of each contractor? How many head was it for?

Name of Firm:	Name of Firm:
Name of Owner or Manager: (First) (Middle) (Last)	Name of Owner or Manager: (First) (Middle) (Last)
Address: (Route or Street)	Address: (Route or Street)
(City) (State) (Zip)	(City) (State) (Zip)
Species:	Species:
Number of Head:	Number of Head:

182
183

SECTION I - LIVESTOCK AND POULTRY

Items 5 and 6

Purchase of poultry

This item screens for any purchases to be reported in item 6. The respondent should volunteer the species purchased, a check entered and a total obtained at the time or after all species have been checked. Purchases of poultry during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the purchases. For large integrated farms that do not actually purchase the poultry, but obtain them from the previous phase, obtain an estimate of the value of the poultry moving through the operation.

Include poultry raised under contract as well as poultry owned by this operation. In most contract arrangement, the contractee does not purchase the birds; however, expenses incurred by the contractor are to be included in the questionnaire. If the operator is unable to report the expenses, determine the number of birds grown under contract in 1987 and explain in notes the services provided.

A BROILER chick is one raised to maturity in 8 to 12 weeks and sold for slaughter. An EGG type chick will be raised to laying age and placed in the laying flock for egg production. A STARTED PULLET is an immature female chick to be used for egg production.

For straight run purposes (about one-half cockerels and one-half pullets) allow the respondent to determine the use of the chickens purchased; otherwise, record them as broiler chicks.

SECTION I LIVESTOCK AND POULTRY

Items 7 and 7a — Other livestock or livestock products

Any other livestock or products not included in items 4 or 6 should be included here. Record the expenses for horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock. Also include the purchases of such things as milk and eggs for the purpose of fulfilling a marketing agreement.

Item 8 — Contract arrangements

This item screens for any contract arrangements to custom feed or produce livestock, poultry or eggs.

Item 8a — Name and address of each contractor

See Chapter 2 - TERMS AND DEFINITIONS for a complete explanation of contract arrangements.

For each contract to produce livestock or poultry, enter the name of the firm, the name of the owner or manager, the address, the species and the number of head in the box shown. In poultry or hog contracts, the farm or ranch operator usually houses and feeds the poultry or hogs until they reach a specified age or weight. The expenses for veterinarian and related services, feed and all other services provided for poultry are to be included in the questionnaire.

If the operator is unable to report these expenses, determine the number of animals raised under contract during 1987, and explain in notes the type and amount of services provided by the contractor. If possible obtain the contractor's phone number so the State office can contact him to obtain the information. This should be done through the State office; otherwise, several enumerators may be contacting the same contractor.

CHAPTER 6
AGGREGATE EXPENDITURES



J VEHICLES and MACHINERY PURCHASED or RENTED J

1. During 1987, were any **tractors** purchased for farm or ranch use?
[INCLUDE amount paid by landlord(s) and partner(s) and minus trade-in, rebate or discounts.]

☐ *YES* ☐ *NO - [go to 2]*

	— $ —
1a. What was the total cost?	379

2. Any new or used farm equipment, implements or machinery other than tractors?

☐ YES ☐ NO - *[go to 3]*

	— $ —
2a. What was the total cost?	380

3. During 1987, were any trucks, pickups, jeeps, carryalls, vans, campers or buses **purchased** for use by this operation?

☐ YES ☐ NO - *[go to 4]*

	— $ —	FARM SHARE — % —
3a. What was the total cost and farm share percent?	378	405

4. Were any **autos** purchased by this operation?

☐ YES ☐ NO - *[go to 5]*

	— $ —	FARM SHARE — % —
4a. What was the total cost and farm share percent?	184	185

5. During 1987, did this operation rent or lease any tractors, autos, trucks, farm or irrigation equipment, or storage structures for farm or ranch work?

☐ YES ☐ NO - *[go to N1]*

	— $ —
5a. What were the rental costs *[FARM SHARE]*?	381

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

Item 1 — Tractors purchased - screening

This item screens to see if tractors were purchased for use on this operation excluding garden tractors. Include tractors owned by others but used on this operation, such as a landlord tractor used by a tenant. If no tractors were purchased during 1987 for use on the operation go to item 2.

Landlord's tractors for use on this operation should be included. If tractors are used strictly for custom work and the custom work expense and income are not a part of the operation records, then the expenses would be excluded since they are not part of the operation.

Item 1a — Cost

The total cost should include the expense of accessories purchased with the tractor, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees may be included in the purchase price if they were not a separate item on the bill.

The value received for any vehicle trade-in and/or discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the costs.

If a partnership is established to share the purchase cost, record only the share for which the responding operation is responsible, for example, 1/4, 1/2, and the corresponding dollar amount. For example, two other persons outside of this operation and this operator share 1/3's on a $90,000 purchase. Record 1/3 along the margin and $30,000 in the answer cell.

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

Item 2 Machinery and implements purchased

Purchases of machinery and implements by this operation or the landlord(s) during 1987 are to be included here. The machinery may be used for custom work or on a hire basis and still be recorded as a farm expenditure. If the machine is STRICTLY used for custom work and the custom work expense and income are not a part of the farm (or ranch) records, then the expenses are not considered a part of this operation and would be excluded. Also, included in this section would be purchases of other motor vehicles such as airplanes. ATV's (All Terrain Vehicles), and skidloaders.

INCLUDE:

TILLAGE machinery - cultivators, disks, harrows, hoes (rotary), plows, scrapers, subsoilers and similar equipment.

PLANTING, FERTILIZING and CHEMICAL machinery-drills (grain), dusters, listers, pesticide, spreaders and similar machinery, planters, spreaders and similar equipment.

HARVESTING machinery - combines, cutters, diggers, forage harvesters, pickers, shakers and similar equipment.

HAYING machinery - balers, conditioners, crimpers, crushers, cutters (rotary), loaders, mowers, rakes, shredders, swathers, windrowers and similar equipment.

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

OTHER motor vehicles, machinery and equipment, airplanes, ATV's, blowers diggers (posthole), dryers (crop) and equipment, elevators, electric equipment (standby), engines (gasoline), feed grinding and mixing equipment, loaders, motors (electric), skidloaders, silo unloaders, trailers, wagons and any other equipment not included in the preceding four categories.

Item 2a — Cost

Record the price paid less any trade-in allowance discounts. Delivery charges and sales tax should be included in the net expense. If the respondent entered a partnership to purchase a machine during 1987, record only the share the respondent owned. Enter the share (1/4, 1/2, etc.) outside the table so the data appears reasonable to the reviewer(s).

Items 3 and 4 — Vehicles purchased

In these items record the purchases of autos, trucks, pickups, jeeps, carryalls, vans, campers or buses to be used in this operation. Landlord vehicles purchased during 1987 for use on this operation should be included. If the vehicles were purchased STRICTLY for custom work and the custom work expense are not a part of the operation record, these purchases should be excluded.

Item 3 — Truck or pickup purchases

This item screens to see if any trucks or pickups were purchased during 1987 for use on this operation. If none were purchased for farm or ranch use, go to item 4 to screen for autos purchased.

This item is to record purchases during 1987 of trucks, pickups and similar vehicles used in the farm or ranch operation. Purchases strictly for personal or pleasure use are to be excluded.

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

Item 3a Cost

The total cost should include the cost of accessories purchased with the vehicle, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees, financing charges and insurance may be included in the purchase price or on a separate item on the bill. Either way, they should be included.

The value received for any vehicle trade-in and/or the discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the cost.

The farm share is an estimate of the percent usage that was for the farm or ranch and related business.

Item 4 Autos - screening

Item 4 screens to see if any autos were purchased during 1987 for use on this operation. If none were purchased, to SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE. Purchases STRICTLY for personal or pleasure uses are to be excluded.

Item 4a Cost

The total cost should include the cost of accessories purchased with the auto, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees, financing charges and insurance may or may not be included in the purchase price if they were not a separate item on the bill. Either way, they should be included.

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

The value received for any auto trade-in and/or the discount or rebate received are to be considered as a cost reduction and taken into consideration when computing cost. The farm share is the estimated percent of the total usage that was for this operation.

The farm share is the estimated percent of the total usage that was for this operation.

Items 5 and 5a

Renting or leasing vehicles, irrigation equipment, storage structures.

The FARM SHARE expenditures for vehicles (autos, trucks, tractors and other motor driven vehicles), irrigation equipment, farm service and storage structures and any other farm equipment should be reported on the respective line.

Take the respondent's word on whether the rental agreement is actually a lease or a conditional sales contract. An agreement is considered a conditional sales contract rather than a lease if any of the following are true:

1. The agreement applies part of each payment toward an equity interest you will receive.

2. You get the right to buy the property after making all the required payments.

3. You must pay, over a short period of time, an amount that is a large part of what you would have to pay to buy the property.

4. You pay rent that is much more than the current fair rental value of the property.

5. You have an option to buy the property at a price that is small compared with the value of the property at the time you may take advantage of the option.

SECTION J - VEHICLES AND MACHINERY PURCHASED OR RENTED

6. You have an option to buy the property at a price that is small compared with the total amount you are required to pay under the lease.

7. The lease designates some part of the payments as interest or part of the payments are easy to recognize as interest.

— 16 —

N1 FARM (RANCH) and LAND IMPROVEMENTS and MAINTENANCE N1

1. During 1987, did this operation have any expenses for new construction of fences and corrals, soil conservation, drainage or irrigation improvements or buildings? *[Include reimbursed and non-reimbursed expenses.]*

   ☐ YES ☐ NO - *[go to 3]*

2. What were the expenses for new construction for—

	New Construction — $ —	Maintenance/ Repair — $ —
2a. fencing?	188	189
2b. all OTHER farm (ranch) improvements including land, drainage, structures, conservation, irrigation, and facilities to improve productivity? *[WESTERN states include capital improvements to grazing land]*	382	383
2c. operator's dwelling?	498	186
2d. farm buildings?	499	187

3. Did this operation have any costs for **maintaining or repairing** any of these improvements to the buildings or land?

   ☐ YES - *[Complete right-hand column]* ☐ NO

CHAPTER 6
AGGREGATE EXPENDITURES

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

General

This section covers new construction, maintenance and repairs relating to fencing, soil conservation, drainage, irrigation and any other farm or ranch improvements. Separate columns are provided for reporting new construction and maintenance and repairs. Landlord(s) and tenants' expenses, reimbursed and non-reimbursed expenses should all be included.

Land improvements are defined as improvements which alter the land in a PERMANENT fashion. Maintenance and repair expenses on those land improvements and conservation recur annually and are significantly related to the ongoing operation of already existing improvements.

Examples are annually leveling in preparation for planting or the repair of dikes and ponds already in existence. New construction expenses frequently include expenses for materials such as large quantities of new tile, or plastic tubing, new culverts, pipe, fencing and associated machinery and labor charges. Examples of maintenance and repair expenses would be leveling in preparation for planting or repair of existing dikes and ponds or small purchases of replacement tile or other materials.

Item 1

Improvements and maintenance - screening

A screening question is provided to determine if any expenses were incurred for NEW construction.

Item 2a

Fencing

On many farms and ranches fence construction and repair is a major expenditure. New construction is considered a capital expenditure and must be placed on a depreciation schedule.

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

Item 2b — All OTHER farm (ranch) improvements

INCLUDE:

Record the total expenditures from all sources for any (reimbursed or non-reimbursed) expenses for soil conservation improvements such as terraces, water and sediment control basins, grassed waterways, ponds, windbreaks, permanent cover, contouring, grading, filter strips, or anything else.

Record the total expenditures for drainage such as ditches, bedding, shaping, subsurface drain tile and any other expenditures to improve drainage.

Record here any irrigation improvements such leveling or digging wells or ditches. Land leveling involves the removal or irregularities on the land surface by the use of special equipment for the purpose of improving drainage, more uniform planting depths, more effective use of precipitation or irrigation water and greater efficiency in tillage operations. All leveling improvements should be entered here regardless of the intent.

Expenses for irrigation equipment such as pumps, motors, sprinklers, pipes or fittings should also be included.

Include construction or repair and maintenance of corrals, feedlots, feeding floors, trench silos, waste facilities, wells and equipment not for irrigation. If enumerating in a Western state, include capital improvements to grazing land.

Item 2c — Operator's dwelling

Record the cost, if any, to build the operator's dwelling if on the operation.

SECTION N1 - FARM (RANCH) AND LAND IMPROVEMENTS AND MAINTENANCE

Item 2d — Farm buildings

Record the cost, if any, to build any farm or ranch buildings, storage facilities, sheds, silos, bins and similar structures.

Item 3 — Maintaining or repairing land improvements

This question screens to see if there were any repairs or maintenance costs for any of the items in 2.

N2 DEPRECIATION and OTHER EXPENSES N2

— $ —

1. What was this operation's 1987 depreciation expenses for all capital assets? *[if partnership, include amount paid for partners]* ..... 190 ☐☐☐☐☐

2. Did this operation have any agricultural expenses I have not recorded?

☐ YES ☐ NO - *[go to 0]*

2a. What were they and how much did they cost?
[List each item and expense, then total]

Item	Cost — $ —
_____	☐☐☐☐☐
_____	☐☐☐☐☐
_____	☐☐☐☐☐
TOTAL	191 ☐☐☐☐☐

SECTION N2 - DEPRECIATION AND OTHER EXPENSES

Item 1 — Depreciation

Depreciation is an annual allocation of the original cost, of a capital asset. Typically the useful life of an asset is estimated at the date of acquisition. For this survey it is suggested that depreciation amounts be identical to those used for the respondent's income tax return, which may differ from straight line estimates. DO NOT ENTER value of depreciable assets.

Items 2 and 2a — Other expenses not recorded elsewhere

This item is a reminder to include agricultural expenses not already recorded. List any expenses the respondent did not report earlier. After reviewing the list, you may want to include the reported item in another category. Most expenses should have been included in another item and an effort made to place them. Total the expense(s) that cannot be included elsewhere and enter them in the 191 code box.

O LANDLORD EXPENSES O

1. *[If cash rent or share rented acres reported—A.1b, continue; else go to P]*

2. What expenses did the landlord(s) pay?
[Check each item and enter total amount.]

	How much? — $ —	Was amount included previously? *[circle code]* YES	NO
☐ seeds and plants *[C-2a]*	192	193 1	2
☐ fertilizer, lime, soil conditioners *[C-2b]* and pesticides *[C-2c]*	194	195 1	2
☐ custom work *[C-5a]*	196	197 1	2
☐ fuels and oils *[D-1a]*	198	199 1	2
☐ irrigation water and fees *[D-3a]*	200	201 1	2
☐ insurance *[crop, livestock, motor vehicle liability, blanket—D-3c-3d]*	202	203 1	2
☐ real estate and property taxes *[D-3e]*	204	205 1	2
☐ marketing containers *[D-6a]*, transportation *[D-6b]* and storage *[D-6c]*	206	207 1	2
☐ feed *[I-2a]*	208	209 1	2
☐ veterinary services and supplies *[I-2c]* livestock chemicals *[I-2d]* and livestock equipment *[I-2e]*	210	211 1	2
☐ purchases of beef or dairy cattle, calves, hogs or sheep *[I-4]*	212	213 1	2
☐ purchases of poultry *[I-6]*	214	215 1	2
☐ purchases of other livestock *[I-7]*	216	217 1	2
☐ leasing of irrigation equipment *[J-5a]*	218	219 1	2
☐ building construction and repair *[N1-2d]*	220	221 1	2
☐ repairing and maintaining operator's dwelling *[N1-2c]*	222	223 1	2
☐ NEW construction of farm (ranch) structures or soil conservation improvements *[N1-2a-2b]*	224	225 1	2
☐ MAINTENANCE or REPAIR of farm (ranch) structures or soil conservation improvements *[N1-2a-2b]*	226	227 1	2
☐ ALL OTHER landlord expenses, excluding interest *[N2-2a]*	228	229 1	2

3. Did the landlord(s) receive any payments from a Federal, state or local farm program for this operation?

	— $ —
☐ YES - 3a. How much?	230

SECTION O - LANDLORD EXPENSES

Item 1 Screening for landlord(s)

This section is only applicable if this operation had a landlord. You may wish to refer to Section A, Item 1b to determine if this was the case.

Item 2 Categories of expenses

To obtain total expenses for this operation, this section records expenses paid by the landlord(s). They may or may not have been recorded earlier. Since landlord(s) may pay a variety of expenses, check boxes are provided to indicate which of the expenses in the pre-listed categories the landlord(s) paid. The letters and numbers in the brackets indicate the section and item to which the individual expense applies.

After the boxes are checked, ask how much of that expense the landlord(s) paid and enter the answer in the left-hand column. The right-hand column asks if this expense was reported earlier. This will eliminate duplication of landlord expenses and also give a total of expenses paid by the landlord(s).

Items 3 and 3a Farm program receipts by landlord(s)

Record here any money received by the landlord(s) from a Federal, state or local farm program. This may be from a deficiency, diversion, storage, ARP, CRP, conservation, disaster, PIK or something else.

P SALES and INCOME (excl. landlord's share) P

1. *[If has landlord(s), read]*
Now I am finished with expenses which landlord(s) may pay. Most of the remainder of the questionnaire pertains only to income and liabilities you (the operator) and *[if partnership]* your partner(s) may have.

2. What crops did this operation sell in 1987 and what was the GROSS value received? *[Include crops grown in any year and partner(s) share but exclude the value, if any, of the landlord and/or contractor's shares. Check crop and enter TOTAL amount received in cash sales column.]*

	Total CASH Sales — $ —		Value Placed under CCC Loan during 1987 — $ —
☐ barley, oats, rye, peas, sorghum, dry beans	231	☐	232
☐ corn (field)	233	☐	234
☐ cotton	235	☐	236
☐ flax and sunflowers	237	☐	238
☐ peanuts	239	☐	240
☐ rice	241	☐	242
☐ soybeans	243	☐	244
☐ sugar crops, ALL	245	☐	246
☐ tobacco, ALL	247	☐	248
☐ wheat, ALL	249	☐	250
☐ vegetables (fresh and processing)	251		
☐ citrus fruits	252		
☐ non-citrus fruits and nuts	253		
☐ nursery and greenhouse (incl. mushrooms, sod, bulbs, and flowers)	254		
☐ Other crops (such as potatoes, hay, seeds, popcorn)	255	☐	256

2a. Any other crops? *[enter above]*

3. Did this operation place any crops under CCC loan in 1987?

☐ YES - 3a. Which crops were they and what was the value of that placed under loan?
[check each crop and enter value in right-hand column]

☐ NO

Crops Ref.
257

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

General

The purpose of this section is to determine the sales and income of crops and livestock produced by this operation. The answers provide a basis for estimating gross cash farm income.

DO NOT INCLUDE THE SHARE GIVEN TO A LANDLORD.

Item 1

Transition statement

A transition statement is provided from the landlord expenses section to this section. For those operations not having a landlord, go to item 2.

Item 2

Crop sales

Ask the respondent which he sold in 1987, REGARDLESS OF THE YEAR PRODUCED. Income received from co-ops and other sources in 1987 for crops delivered in previous years should be included. For integrated firms that pass crops on without sales, an estimated value of the crop should be included. However, crops removed under a contract arrangement are to be EXCLUDED here and recorded in 12a (3). Record the GROSS amount received by the operator for the crops sold. Record the crops on the pre-listed lines and combine any other crops on the last line under Other crops.

Item 2a

Crops sales - prompt

After the respondent has reported all his crops, ask if there are any others. This serves as a reminder that none were forgotten.

Items 3 and 3a

CCC loan - screening

This item determines if any crops were placed under CCC loan during 1987. CCC stands for Commodity Credit Corporation and was created in 1933 to help stabilize and support farm prices and income, and to help maintain balanced supplies and the orderly distribution of agricultural commodities.

P

sales and income (excl. landlord's share) — continued

P

4. During 1987, did this operation repay (not forfeit) any CCC loans from any year's crop?

☐ YES - 4a. How much was repaid—

— $ —

(1) In cash? 258

(2) In certificates? 259

☐ NO

5. Did this operation have any CCC loans outstanding at the end of 1987?

— $ —

☐ YES - 5a. How much was outstanding? 260

☐ NO

6. During 1987, did this operation sell any livestock or livestock products?

☐ YES ☐ NO - *[go to 8]*

7. What was sold and how much was received for each species?
[Check each species and record total receipts.]

— $ —

☐ **BEEF** cows, bulls and replacement heifers from the breeding stock 261

☐ **DAIRY** cows, bulls and replacement heifers from the breeding stock 262

☐ milk and other dairy products? *[cream, butter, cheese]* 263

☐ calves and all OTHER cattle 264

☐ sows, boars, and replacement gilts from the breeding stock 265

☐ all OTHER hogs and pigs 266

☐ ALL sheep and lambs *[exclude wool]* 267

☐ wool *[include incentive and unshorn lamb payments]* 268

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

The purpose of this item is to determine the cash flow to operations as a result of participation in the loan program.

Examples of "Other Crops" which may receive CCC loans are flax and rapeseed.

Items 4 and 4a — Repaid CCC loans

Record the amount of loans from CCC secured by agricultural commodities that were repaid in calendar year 1987, regardless of the year the loan was taken out. Do not include the crops that were forfeited during 1987 here. Payment should be recorded in that received for cash and that in PIK certificates.

Items 5 and 5a — CCC loans outstanding

Record the value of CCC loans that this operation had outstanding as of December 31, 1987.

Item 6 — Livestock sales - screening

Sales of livestock or products during 1987 should include the price of the animals plus commission, yardage, insurance and fees associated with the marketings. For large integrated operations that do not sell the livestock, but pass them on to the next phase, obtain an estimate of the value of the livestock moving through the operation. This item screens for any of the species mentioned in item 7.

Item 7 — Beef and dairy cows, calves, hogs and sheep

INCLUDE:

(1) Include BEEF animals sold from the breeding stock.

(2) Include DAIRY animals sold from the breeding production stock.

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

(3) Include MILK and other dairy products such as cream, butter and cheese.

(4) Any other cattle or calves not included in (1) and (2) should be reported in CALVES AND ALL OTHER CATTLE. Include sales of cattle from a feedlot.

(5) Include all GILTS, SOWS AND BOARS sold from the breeding stock.

(6) In ALL OTHER HOGS AND PIGS record the sales of all other hogs and pigs such as feeder pigs and market hogs.

(7) In SHEEP AND LAMBS record all sells whether they were from the breeding herd or not.

(8) In WOOL include all money received including incentive and unshorn lamb payments.

P

sales and income (excl. landlord's share) — continued

P

8. During 1987, did this operation sell any poultry or poultry products?

☐ YES ☐ NO - *[go to 10]*

9. What was sold and how much was received for each species or product?
[Check each and record total receipts.]

	— $ —
☐ broilers, fryers, and other meat-type chickens	269
☐ turkeys *[for slaughter and breeding]*	270
☐ all OTHER poultry (including layers and started pullets *[record ducks and game birds below in 10]*	271
☐ eggs	272

10. Did this operation sell any OTHER livestock or livestock products such as horses, rabbits, goats, bees, honey, fish, mink, ducks or game birds?

	— $ —
☐ YES - 10a. How much was received?	273

☐ NO

11. What was the estimated MARKET value of—

	— $ —
11a. meat and livestock products produced and used on this operation for home consumption in 1987?	274
11b. other products produced and used on this operation such as fruits, berries, vegetables, firewood?	275

Livestock Ref.
500

P sales and income (excl. landlord's share) — continued P

12. Did this operation produce any crops, livestock, poultry or other agricultural products under a **contract arrangement** during 1987? (Include all production, marketing, custom feeding or other contracts.)

☐ YES ☐ NO - *[go to 13]*

12a. What was the estimated market value of the following products at the time they were removed—

	— $ —
(1) all livestock, poultry or their products? ..... market value	276
(2) How much did this operation receive in fees for raising the livestock (or products)? ..... income	277
(3) everything else? *[fruits, vegetables, other crops or products]* ..... market value	278
(4) How much did this operation receive in fees for the crops or products? ..... income	279

13. Did this operation (excluding landlord's share) receive any money from Federal farm programs? *[include commodity PIK certificates]*

☐ YES ☐ NO - *[go to 15]*

	— $ —
14. What was the TOTAL received? *[gross value of cash plus PIK]*	280

14a. How much of this was for—

	Federal — $ —	State or local — $ —
(1) set-aside or Acreage Reduction Programs? *[deficiency, diversion or storage]*	281	
(2) 10-year CRP or conservation reserve rental payments? *[including corn bonus]*	283	
(3) Incentive or cost share payments for—		
(4) soil conservation practices and improvements?	285	286
(5) all other conservation programs? ...	287	288

15. Did this operation receive any money from a state or local source for participating in any conservation program?

☐ YES - 15a. What program was it and how much was received? *[Enter amount in right-hand column for each program.]*

☐ NO

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Item 8 — Sales of poultry - screening

This item screens for any poultry or poultry products sold in 1987. If the answer is YES, go to 9.

Item 9 — Broilers, fryers, turkeys, other poultry and eggs sold.

Ask the respondent what poultry or products he/she sold in 1987 and enter a check beside the appropriate species. Then record the total amount received.

Items 10 and 10a — All other livestock or livestock products.

Any other livestock or products not included in items 8 or 9 should be included here. Record the sale of horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock.

Item 11a — Market value of meat and livestock products.

Record the estimated MARKET value of all the meat and livestock products produced and used on this operation and also consumed in 1987.

Item 11b — Market value of everything else

Record the estimated MARKET value of everything else which may have been produced and used on this operation such as fruits, berries, vegetables and firewood.

Item 12 — Contract arrangements - screening

This item screens the operation for contract arrangements to produce livestock, poultry or their products and anything else, such as fruits, vegetables, other crops or products. Included here are custom feeding contracts.

P sales and income P
excl. landlord's share) — continued

16. Was there any other income, such as— *[check all that apply]*	NO	YES	17. How much was it? — $ —
16a. custom work for others? *[include machine hire]*	☐	☐	289
16b. grazing of livestock?	☐	☐	290
16c. wages earned on other farms and ranches?	☐	☐	291
16d. sales of farm machinery and vehicles? *[FARM SHARE of autos]*	☐	☐	292
16e. insurance indemnity payments?	☐	☐	293
16f. OTHER farm-related income such as cooperative patronage dividends? *[exclude recreation income]*	☐	☐	294

18. Did this operation allow any hunting, fishing, or other outdoor recreation on its property in 1987? *[exclude household members and partner(s); may be free or paid]*

☐ YES ☐ NO - *[go to Q]* 295

18a. Was there income?

☐ YES ☐ NO - *[go to Q]*

	— $ —
(1) How much was received for fishing and hunting only?	296
(2) How much was received for other outdoor recreation?	297

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Item 12a — Value of products produced under contract removed from this operation.

Record the actual MARKET value of the products at the time they were removed from the farm or ranch. Do not include the amount received by the farmer or rancher to produce the product.

Record the fees received by the operator for raising livestock and poultry or crops produced under contract arrangements.

Item 13 — Federal farm programs

Record all CASH PLUS PIK payments related to the operation, excluding crop insurance payments, CCC loans, wool and unshorn lamb payments. Include cash diversion payments, target price payments, disaster payments or payments made for soil conservation or water use and control.

Item 14 — Receipts

Record the total received for all Federal farm program payments.

Item 14a — Federal farm programs

Of the total reported in Item 14, record how much was in each of the pre-listed categories.

Item 15 — State or local farm programs - screening

This item serves as a screening question to determine if the respondent received any payments for participating in any state or local farm or conservation program.

Item 15a — State or local farm programs

If the answer to item 15 was yes, determine what the state or local farm or conservation program was and how much was received by this operation.

1987 FARM COSTS AND RETURNS SURVEY

SC-1

Value Codes

Dollar Range	Code
None....	1
$ 1.....999....	2
$ 1,000.....2,499....	3
$ 2,500.....4,999....	4
$ 5,000.....9,999....	5
$ 10,000.....14,999....	6
$ 15,000.....19,999....	7
$ 20,000.....24,999....	8
$ 25,000.....29,999....	9
$ 30,000.....34,999....	10
$ 35,000.....39,999....	11
$ 40,000.....59,999....	12
$ 60,000.....79,999....	13
$ 80,000.....99,999....	14
$100,000.....174,999....	15
$175,000.....249,999....	16
$250,000.....499,999....	17
$500,000.....999,999....	18
Over $1,000,000....	19

SC-2

Type of Farm Codes

Type of Farm	Code	Commodities
Cash Grain	1	Corn,sorghum,small grains, flax, soybeans for beans, cowpeas for peas dry edible and seed beans, peas and rice.
Tobacco	2	Tobacco
Cotton	3	Cotton
Other Field Crops	4	Peanuts, Irish potatoes, sunflowers, sweetpotatoes, sugarcane, broomcorn, popcorn, sugarbeets, mint, hops, seed crops, hay, silage and forage
Vegetables, Fruits and Nuts	5	All vegetable and melon crops, citrus and non-citrus tree fruits, other small fruits, berries, grapes and nuts.
Nursery or Greenhouse	6	Nursery or Greenhouse
Beef, Hogs, Sheep	7	Cattle, calves, hogs, sheep, goats,wool, and mohair (Exclude dairy cattle)
Poultry	8	Chickens, eggs, turkeys, ducks and other poultry products.
Dairy	9	Milk and cream, plus sales of dairy cows,heifers , calves and dairy bulls.
Other Livestock	10	Mules, horses, foals and ponies, fur farms, bees and honey, fish, minnows, etc

SECTION P - SALES AND INCOME (EXCL. LANDLORD'S SHARE)

Items 16a - 16f — Miscellaneous income

These items screen for any other income which may have been received by this operation. Check each item YES or NO if any income was received. The actual income will be reported in Item 17.

Item 16a — Custom work and machine hire

Include income received by the operator for custom work and machine hire that is part of the farm or ranch operation. This is work performed with the operator's machinery for others for a fee. Do not include custom work that is a separate operation and has its own bookkeeping system. Income from a separate operation should be record on in Section CC - MISCELLANEOUS, Item 4a.

Item 16b — Grazing of livestock

Include any income to this operation from the grazing of livestock on a per head or gain basis.

Item 16c — Wages on other operations

Include wages earned by the operator and other household members working on any other farm or work done for a landlord. Hired managers should not report the salary received from work done for this operation.

Item 16d — Sales of farm machinery and vehicles

Include all direct sales of machinery used for farming, such as tractors, combines, farm machinery, equipment or supplies. Also include the farm share of autos and trucks sold. Do not include items traded-in for other items since the value of these was deducted from the purchase price.

SECTION P - SALES AND INCOME (EXCL. LANDLORD SHARE)

Item 16e Insurance indemnity payments

Include any income received in compensation for any hurt, loss or damage.

Item 16f Other farm related income

Include all other farm related income not included in 16a-16e, excluding outdoor recreation income. Include by-product sales and cash, equity and patronage dividends from cooperatives returned to this operator as part of this operation. Also include sales of livestock manure and timber.

Item 17 Miscellaneous income

Record the total 1987 income received by the items checked in 16a - 16g.

Item 18 Outdoor recreation - screening

This item screens for any hunting, fishing or other outdoor recreation which may have been permitted by this operation in 1987. It may have been for a fee or not. Exclude any outdoor recreation which may have been done by a household member or partner.

Item 18a Outdoor recreation for a fee - screening

This item screens for a outdoor recreation for which there was a fee. A further breakdown is needed for fishing and hunting only and any other.

BB

ASSETS and LIABILITIES (excl. landlord's share)

BB

1. *[respondent's best estimate; include partner's share; exclude landlord's share]*
At the end of 1987, what was the **market value** of—

		MARKET VALUE — $ —
1a.	**all LAND OWNED** by this operation and all buildings and structures on it? *[include operator dwelling if on the operation]*	298
1b.	all FARM buildings, such as barns, cribs, silos, equipment shops, grain bins, storage sheds?	299
1c.	operator's dwelling? *[if on the operation]*	300
1d.	all trucks, farm share of autos, tractors, machinery, tools, equipment and implements?	301

2. How much was—

		— $ —
2a.	all the livestock and poultry on hand at the **BEGINNING** of 1987 worth?	302
2b.	all the livestock and poultry on hand at the **END** of 1987 worth?	303
2c.	all crops stored **on** or **off** this operation on hand at the **BEGINNING** of 1987 worth?	304
2d.	all crops stored **on** or **off** this operation at the **END** of 1987 worth?	305

3. At the end of 1987, what was all purchased seed, feed, fertilizer, chemicals, fuels, parts, and other farm (ranch) supplies on hand worth? — 306

4. *[show GREEN card, SC-1]*

Considering all OTHER assets of this operation at the end of 1987, what **code** represents the total value?

[Include shares in farm cooperatives, (i.e., co-ops, FLB, PCA), bonds, certificates of deposit, savings and checking accounts, and money owed to this operation, including crops and livestock sold for future payment.]

code 307

Ref. page
501

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

Item 1 — These questions are used to determine the MARKET value of assets associated with this operation at the end of 1987. Obtain the operator's best estimate of the current market value of the listed assets. Include the partners share, but exclude the landlord's share.

Item 1a — Value of all land and buildings OWNED

Ask the operator the estimated market value of all land and buildings OWNED by the operation as of December 31, 1987. Include the value of his dwelling if the dwelling was located on one of the acres in Section A- LAND OPERATED, RENT PAID, Item 1e; or if expenses for repairs, maintenance, taxes, insurance, etc. for the dwelling were included in the expenses for the farm operation.

Item 1b — Value of all farm buildings

Using the same criteria as item 1a, ask the operator the estimated market value of all FARM buildings he owned on land that he or his partner(s) owned on December 31, 1987. Include barns, cribs, silos, equipment shops, grain bins, storage sheds and similar type buildings. This value should be less than the value in 1a. Exclude the dwelling value.

Item 1c — Value of operator's dwelling.

Again, using the same criteria as item 1a, ask the operator the estimated value of his dwelling if owned and located on this operation. This value will be used to impute a fair rental value to the operator for income purposes. Include the value of the operator's dwelling if the dwelling was located on one of the acres in Section A - LAND OPERATED, RENT PAID, Item 1e; or if expenses for repairs, maintenance, taxes, insurance, etc. for the dwelling was included in the expenses for the farm operation.

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

Item 1d — Value of trucks, autos, tractors, farm machinery, equipment and tools.

Estimate the current market value of the farm share of trucks, farm share of autos, tractors, machinery, tools, equipment and implements owned by the operation.

Item 2 — Value of all livestock and poultry and crops

Record the market value of the inventory at the appropriate point in time--BEGINNING or END of 1987.

Item 2a — Value of all livestock and poultry at the BEGINNING of 1987.

Record the value of the inventory at the market price at the BEGINNING of 1987. Include all types of livestock; animals held for breeding purposes as well as those held for resale. Include beef and dairy cows, bulls, heifers, calves and any other cattle, hogs and pigs, sheep and lambs, horses, ponies, mules, goats, ducks, geese, guineas, pigeons, fur bearing animals, catfish, bees or other specialty livestock.

Item 2b — Value of all livestock and poultry at the END of 1987.

Record the value of the inventory at the market price at the END of 1987. Include the same livestock species as mentioned in item 2a.

Item 2c — Value of all crops stored at the BEGINNING of 1987.

Include crops produced in 1987 as well as earlier years, regardless of intended use. This may be for feed, seed, sales or something else. CCC stocks owned by the operation should be EXCLUDED. Hog and cattle producers may overlook large holdings of whole grain intended for feed. All whole grains on

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

hand are to be included; however, items such as cracked corn, rolled oats and so on are to be excluded here and reported in item 3. Also include crops purchased in addition to what was produced. Include silage and hay.

Item 2d — Value of all crops stored at the END of 1987.

Record the value of the inventory at the market price at the END of 1987. Use the same definitions as in 2c.

Item 3 — Other farm or ranch supplies

Included the estimated value of unused supplies of purchased inputs such as seeds (incl. corn) fertilizer, chemicals, medications, fuels and parts.

BB assets and liabilities (excl. landlord's share) — continued BB

5. What banks, individuals, co-ops, merchants or Federal agencies did this operation owe money to at the end of 1987?
[check each one below]

	Balance — $ —	Avg. Int. — % —
☐ Production Credit Association	309	310 •__
☐ Federal Land Banks	311	312 •__
☐ Farmers Home Administration	313	314 •__
☐ banks, savings and loan associations	315	316 •__
☐ life insurance companies	317	318 •__
☐ implement dealers *[for tractors and other equipment]*	319	320 •__
☐ co-ops and other merchants *[truck, autos, fuel, feed, repairs, etc.]*	321	322 •__
☐ individuals from whom farm land was bought	323	324 •__
☐ loans for CCC storage and drying facilities	325	326 •__
☐ OTHER debts such as for unpaid veterinarian bills, taxes or insurance premiums *[include finance companies but exclude CCC loans]*	327	328 •__

5a. Any others? *[enter above]*

6. *[ask for each item checked]*

What was the balance and (average) interest rate paid during 1987?

[Interest rate may be zero, for example unpaid veterinarian bills. Enter balance in left-hand column and (average) interest rate in right-hand column, if applicable.]

Ref. page
308

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

Item 4 Other assets

This is the first item for which you will be using a Show Card (SC). The card for this item is printed on GREEN paper (since it deals with income), and is called SC-1.

It contains the following categories and respective codes:

			Code
None			1
$	1-	999	2
$	1,000-	2,499	3
$	2,500-	4,999	4
$	5,000-	9,999	5
$	10,000-	14,999	6
$	15,000-	19,999	7
$	20,000-	24,999	8
$	25,000-	29,999	9
$	30,000-	34,999	10
$	35,000-	39,999	11
$	40,000-	59,999	12
$	60,000-	79,999	13
$	80,000-	99,999	14
$	100,000-	174,999	15
$	175,000-	249,999	16
$	250,000-	499,000	17
$	500,000-	999,999	18
Over		$1,000,000	19

SECTION BB - ASSETS AND LIABILITIES (EXCLUDING LANDLORD'S SHARE)

After handing the respondent the card, ask him to identify the code which corresponds to the range of this operations Other assets. These assets are other than those enumerated elsewhere in the questionnaire and include shares in co-ops, Federal Land Banks (FLB), Production Credit Association (PCA) and other farm cooperatives, bonds, certificates of deposit, savings and checking accounts and money owned to the operation, including crops and livestock sold for which payment had not been received at the end of 1987.

Item 5 Total debt

Ask the respondent what banks, individuals, co-ops, merchants or Federal agencies this operation owed money to at the end of 1987. Check the appropriate pre-listed category. Debts include all obligations (except for non-farm purpose to pay which the farm or ranch had. Include such items as operating or feeder livestock notes, accounts at feed mills, unpaid custom charges, loans for breeding livestock, machinery, farm or ranch improvements or a mortgage or contract on farm or ranch real estate. Include the dwelling if located on the operation, item 1c. Include farm property rented to others.

Do not report any debt for non-farm purposes even if farm or ranch assets are used as collateral. For debts covering more land than the acres operated, report the best estimate for that part of the debt applying to this farm or ranch.

Do not include any of the following debts:

(1) non-agricultural property such as cotton gins, canning factories, sugar mills, motels, retail stores and so on.

(2) change accounts that are usually paid in full each month.

SECTION BB - ASSETS AND LIABILITIES (EXCLUDE LANDLORD'S SHARE)

(3) debts owed for less than thirty days.

Include with OTHER debts the farm share of debts owed to:

(1) all finance companies, such as GMAC and John Deere Finance Company as well as Household Finance.

(2) state Farm Land Boards, Small Business Administration and past due accounts.

For the category, "individuals from whom farm land was bought", include all seller financed debt for land purchased for this operation regardless of the year. This would include all land contracts as well as mortgages.

Item 5a — Other debt - prompt

After the respondent has reported all his debts, ask if there are any others. This serves as a reminder that none were forgotten.

Item 6 — Balance and average interest rate

For each of the checked categories, ask what the balance owed was at the end of 1987 and the average interest paid during 1987. The interest rate should be recorded to the nearest one-tenth of a percent in the right-hand column. The interest may be zero and the balance positive if no interest is charged, such as for unpaid veterinarian bills.

CC MISCELLANEOUS (incl. landlord's share) CC

1. *[show GREEN card SC-1]*

Now I would like to have you classify the total acres you operated in terms of total gross value of sales.

[Be sure sales represent only 1987 and earlier years' production from acres operated in A.]

Considering
- — All your crops sold in 1987.
- — All livestock, poultry (including commercial broilers) and products sold in 1987.
- — All sales of any miscellaneous agricultural products in 1987.
- — All government payments received in 1987.
- — Landlord's share of crops sold in 1987.

code

2. What code represents the total gross value of sales?..... 329

[If Code = 1 or 2, record all 1987 crops, land uses and livestock or poultry on total acres operated, copying as much as possible from B.]

Crops or Land Use	— acres —

330

Livestock and Poultry	— number —

3. *[show GREEN card, SC-2]*

What percent of the total gross value of sales *[indicated in 2]* in 1987 was provided by each of the groups on this card? *[enter percent in column]*

code		percent
1	cash grain	
2	tobacco	
3	cotton	
4	other field crops	
5	vegetables, fruits/nuts	
6	nursery or greenhouse	
7	beef, hogs, sheep	
8	poultry	
9	dairy	
10	other livestock	
		100%

331

SECTION CC - MISCELLANEOUS

General

This is the second item for which you will be using the Show Card (SC - 1, on GREEN paper).

Items 1-3 are used to classify operations by type of farm or ranch and value of sales. The value of sales must represent 1987 sales from the acres operated in Section A.

If the operation has a landlord, this share should be included in items 1 through 3.

In determining the code, be sure to include sales of products raised on the total acres operated. For AREA operators, this would include acres both inside and outside the segment. For tenant farmers include in total value of crops sold any production given to the landlord for land rented. If the operator is also a landlord, exclude in the value of products sold any dollars received for sale of products acquired as payment from land rented to others.

Crop sales include all 1987 AND EARLIER YEARS production which was sold during 1987.

Livestock and poultry refer to all kinds of livestock and poultry sold during 1987. Sales of all types of horses are considered income; however, prizes or winnings from horse racing or showing are not to be considered income.

Sales of miscellaneous agricultural products would include sales of honey, furs, fish, nursery and green-house products, rabbits and so on.

Include all government program payments received in 1987.

Item 2

Code

After showing the respondent the card, ask him which code represents his total gross value of sales. Enter this code in code box 329.

SECTION CC - MISCELLANEOUS

If the gross value of sales is less than $1,000, code 1 or 2, record all the 1987 crops, land uses, livestock, and poultry on the total acres operated in 1987. Be specific in the tables as to types of crops planted, such as barley, corn (field or sweet), tobacco or vegetables. Include crops planted in the fall of 1986 or the spring of 1987 if the crop was harvested or intended for harvest in 1987.

Crops cut for hay or used as pasture should be listed as a crop or land use. If the respondent reports only idle pasture and no crops, determine if any livestock were on this pasture in 1987. Note on the questionnaire when the livestock grazed and the approximate number. Record all livestock, poultry and miscellaneous livestock (bees, mink, rabbits, etc.) on the entire operation. This would include or crops previously reported as well as livestock not included.

Item 3 This is the first item for which you will be using a SC - 2. The card for this item is printed on GREEN paper. It contains the following categories and codes:

Code		
1	Cash Grain	Corn, sorghum, small grains, flax, soybeans for beans, cowpeas for peas, dry edible and seed beans, peas and rice.
2	Tobacco	Tobacco.
3	Cotton	Cotton.

SECTION CC - MISCELLANEOUS

Code		
4	Other Field Crops	Peanuts, Irish potatoes, sunflowers, sweet potatoes, sugarcane, broom-corn, popcorn, sugarbeets, mint, hops, seed crops, hay, silage and forage.
5	Vegetables, Fruits and Nuts	All vegetables and melon crops; citrus and non-citrus tree fruits, berries, grapes and nuts.
6	Nursery or Greenhouse	Nursery or greenhouse.
7	Beef, Hogs, Sheep	Cattle, calves, hogs, sheep, goats, wool and mohair (exclude dairy cattle).
8	Poultry	Chickens, eggs, turkeys, ducks and other poultry products.
9	Dairy	Milk and cream, plus sales of dairy cows, heifers, calves and dairy bulls.
10	Other Livestock	Mules, horses, foals and ponies, fur farms, bees and honey, fish, minnows, etc.

SECTION CC - MISCELLANEOUS

Based on the gross value of sales recorded in item 1, ask the respondent to indicate which percentage of the gross value of sales came from each of the 10 listed major commodity groupings. Record the answer in whole percentage numbers. The percent response will be used to classify this operation in one of the 10 types of farms and ranches. When the respondent indicates sales for two of these commodity groupings were 50/50 for 1987, ask the respondent to identify which of the two groups had the largest gross value of sales. If the respondent only received government payments in 1987, code the farm or ranch based on the type of payment received or the farm or ranch use prior to being placed in a government program. This situation might occur where whole operations were placed in CRP.

Item 4 Off-Farm income

These questions may be skipped if this is a non-family corporation.

This is the third item for which you will be using the Show Card (SC - 1, on GREEN paper). If the respondent indicates the operation suffered a loss in any of the categories, code the item with the corresponding NEGATIVE code.

The amount of off-farm (or ranch) income available to the agriculture sector is sizeable. In order to understand the economic well being of the sector it important to know the amount of outside income available to farm (or ranch) families. For the four listed sources of off-farm income, record the code this operation falls in. If the operation has a landlord, DO NOT INCLUDE HIS SHARE.

CC miscellaneous — continued CC

4. *[show GREEN card SC-1]*
[Exclude landlord(s) share]

Which code number represents the income received in 1987 by you (the operator) and other household members from—

4a.	an off-farm business? . *[Net income]* .....code	332
4b.	off-farm wages or salaries? . *[Gross income]* .....code	333
4c.	interest and dividends? . *[Gross income]*.....code	334
4d.	other off-farm sources (such as non-farm rental property, Social Security, retirement)? . *[Net income]* .....code	335

5. Did this operation have agricultural production in any other state during 1987?
[other than state shown on face page]

☐ YES - 5a. Which state had the largest value of production?
[enter name]

_____ 336

☐ NO

6. Was this operation—*[circle code]*

— a corporation? 1
— a legal partnership? 2
— an individual operation? (sole proprietorship) 3
— or a cooperative?.....4

337

SECTION CC - MISCELLANEOUS

INCLUDE:

(1) the operator.

(2) the senior partner for partnerships (if possible, otherwise, the partner being interviewed).

(3) the individual identified as the operator for family corporation.

(4) other household members living on this operation.

EXCLUDE:

(1) landlord(s) share.

(2) other partners in a partnership.

Item 4a Off-farm related business

Include NET income earned from businesses other than farms or ranches. Include income from ag service firms and businesses. Include income from farm-related businesses only when bookkeeping is maintained apart from this operation and expenses and income are not included elsewhere in this questionnaire.

Exclude income earned from other farming or ranching operations and farm-related sources reported elsewhere in the questionnaire. Interest from an off-farm business should be included in 4c.

SECTION CC - MISCELLANEOUS

Item 4b — Off-farm wages and salaries

Include GROSS cash wages and salaries, tips, commissions, paid bonuses, leave pay, compensation for corporate officers earned by operators and their households. Cash wages and salaries earned by operators and their households from working on other farms or ranches should be included in Section P - SALES AND INCOME.

Item 4c — Interest and dividends

Include interest and dividends from all investments. Any interest received from off-farm sources should be included here. Include oil/gas royalties here.

Item 4d — Other off-farm income

Include all other NET income not yet reported by operators and their households from sources other than this operation. This includes non-farm rental property, Social Security and retirement.

Item 5 — State of operation

Indicate on the questionnaire the major State of production if other than the state on the face page. All data will be allocated to the major state.

Item 6 — Type of operation

This question identifies the type of operation, e.g., corporation, legal partnership, individual or cooperative. These are defined as:

Corporation - A legal form or organization separate from its owners. It is created under the laws of the individual states.

SECTION CC - MISCELLANEOUS

Legal partnership - two or more persons joined together to carry on the operation. Each partner contributes in some way money, property, labor, or skill and shares in profits or losses in accordance with agreed proportions. To be recognized as a partnership, the relationship of the partners must be LEGALLY established. Husband and wife partnerships should generally be classified as family proprietorships. Exclude joint operations which involve livestock only, with no land, and landlord-tenant arrangements.

Individual - Also a family proprietorship, exists when one person (operator) is solely responsible for making management decisions for that operation.

Cooperative - Voluntarily organized association controlled by its members or patrons.

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DD OPERATOR CHARACTERISTICS DD

1. In 1987, what was your (the operator's) major occupation; farm or ranch work, hired manager or something else? *[circle code]*

   farm/ranch work 1
   hired farm/ranch manager 2
   other 3

2. How old were you (the operator) on your last birthday? 339

3. How much formal education do you (the operator) have? *[circle code]*

   less than high school graduation 1
   completed high school 2
   some college 3
   completed college (BA or BS).....4
   beyond college 5

4. How many persons, including yourself (the operator), lived in this household on December 31, 1987?
   [include infants under 1 year and ALL students] 340

5. From whom does this operation usually buy its fertilizer?
   [record name, address and phone on supplement]

6. From whom does it buy its fuel?
   [record name, address and phone on supplement]

7. From whom does it buy its farm supplies?
   [record name, address and phone on supplement]

8. To help identify duplication on our list of farm (ranch) operators, I would like to verify/record the operator's Social Security and Employer ID number.

Operator's SSN	342 _ _ _ - _ _ - _ _ _ _
Federal Employer ID Number	343 _ _ - _ _ _ _ _ _ _
State Employer ID Number	344 _ _ _ - _ _ _ _

SECTION DD - OPERATOR CHARACTERISTICS

Item 1 Major occupation

Circle the code (1-3) which represents the operator's major occupation in 1987. This is defined as where he spend 50% or more of his work time in 1987.

Item 2 Operator's age

The results of this question will allow us to analyze the financial situation as it related to the age of operators.

Item 3 Formal education

Circle the code (1-5) which represents the operator's greatest amount of formal education. BA = Bachelor of Arts and BS = Bachelor of Science. Secretarial, beautician or vocational schools should not count as formal education.

Item 4 Number of persons living in household

This will aid in determining the number of persons dependent on farm income and how many are affected by the current financial situation. Include the operator, infants and all students.

Item 5 Suppliers of fertilizer

The name, address and phone of the major supplier may be recorded here but MUST be recorded on the Worksheet (WS-3) if not recorded previously and checked for fertilizer. The state office will use these names to update their list of fertilizer dealers to enumerate on the prices paid surveys.

Item 6 Suppliers of fuel

This question should be asked of all respondents whether or not they had any fuel expenses.

SECTION DD - OPERATOR CHARACTERISTICS

The name, address and phone of the major supplier may be recorded her but MUST be recorded on the Worksheet (WS-3) if not recorded previously and checked for fuel. The state office will use these names to update their list of fuel dealers to enumerate on the prices paid surveys.

Item 7 Suppliers of farm supplies

This question should be asked of all respondents whether or not they had any expenses for farm supplies.

The name, address and phone of the major supplier may be recorded here but MUST be recorded on the WS-3) if not recorded previously and checked for farm supplies. The state office will use these names to update their list of farm supply dealers to enumerate on the prices paid surveys.

Item 8 Social security, employer ID and state employer ID

Obtaining (or verifying) the operator's Social Security Number, Federal employer ID and state employer ID number will help determine the overlap (or non-overlap) status of the area frame operators. This will also be used to check for duplication within the list frame.

EE CONCLUSION EE

1. *[Ask only if this operation was a PARTNERSHIP — see screening section, questions 4 or 5 — else go to 2.]*

   What is the name and address of each of the (other) partners?

   Name _____ Name _____

   Address _____ Address _____

   _____ _____

   Phone _____ Phone _____

   LSF ID _____ FCRS Str | LSF ID _____ FCRS Str

2. *[Ask only if LIST sample and PRIMARY NAME on label is individual; else go to 5.]*

   During 1987, did you (the operator) make any day-to-day decisions for another farm or ranch which—

	NO	YES
2a. grew any crops?	☐	☐ - *[go to 4]*
2b. had livestock or poultry?	☐	☐ - *[go to 4]*
2c. sold agricultural products?	☐	☐ - *[go to 4]*
2d. received government payments?	☐	☐ - *[go to 4]*
2e. had any crops in storage?	☐	☐ - *[go to 4]*
2f. had any expenses for the purpose of producing agricultural products?	☐	☐ - *[go to 4]*

3. *[If 2a-2f are all NO, go to 7.]*

4. What was its name?

   [If they were individually or jointly operated, complete a separate questionnaire(s) for each, copying as much as possible from this form. Go to 7.]

Name	Individual or Joint?		
_____	☐ NO	☐ YES ►	
_____	☐ NO	☐ YES ►	*[complete a questionnaire]*
_____	☐ NO	☐ YES ►	
_____	☐ NO	☐ YES ►	

SECTION EE - CONCLUSION

Item 1 Partners name

Print or write plainly the names, addresses and phone of all other partners if this operation was a partnership. This partners must have been associated with the operator in 1987 and involved in the day-to-day decisions. "Silent" partners and other household members should not be listed unless they actively participated in the day-to-day decisions. Space is provided for two names with addresses. Additional partner names, addresses and phones should be listed elsewhere and noted.

Item 2 Operates other land - list

When an individual name is selected, it is necessary to determine if this operator also made ANY day-to-day decision for another farm or ranch. To qualify as a farm or ranch, this operation must have:

Item 2a Grown any crops - To qualify as a growing a crop, the respondent must have made the decisions on planting, caring for and harvesting the crop. Include as crops grown mushrooms, nursery stock and greenhouse crops. Exclude home gardens. Crops received on shares from land rented to someone else should not be considered grown by the land owner.

Item 2b Had livestock or poultry - Include as livestock or poultry, all cattle, hogs, sheep, horses, mules, goats, chickens, turkeys, ducks, geese, bees, rabbits, mink or other fur bearing animals and fish that were raised commercially or used for home consumption. FFA and 4-H livestock projects for (cattle, hogs and sheep) must be included. Except for horses and ponies, exclude animals kept for

SECTION EE - CONCLUSION

pleasure use or as pets. Livestock dealers (speculators) should not be treated any differently than any other sampled livestock operator. Slaughter or packinghouses, auction barns, stockyards and order buyers have livestock committed for slaughter. These livestock should not be counted.

Item 2c — Sold agricultural products - Include sales of crops, livestock, fish and other such products. Item 2c should be checked NO, if the respondent was a landlord who only sold agricultural products.

Item 2d — Received government payments - Include as government payments, payments received under various conservation programs. This item should be checked NO, if the respondent was a landlord who only received government payments.

Item 2e — Crops in storage - Check YES if any crops, regardless of ownership, were stored on the total acres operated. In the event the respondent was a landlord who rented out cropland, but had grain stored in facilities on his/her farmstead only, check YES.

Item 2f — Expenses for producing agricultural products- Check YES if the operator had any expenses for producing agricultural products on this other operation.

Item 3 — Non-farm

This item can only be reached if the answer to items 2a through 2f is all NO. If the answer to anyone item is YES, the enumerator should have gone to item 4.

SECTION EE - CONCLUSION

Item 4 Name

Record here the name of the other farm or ranch if they were individually or jointly operated. This item may be skipped if the operation was managed. Then go to item 7.

Item 5 Operate other land - area

The operator of the operation described on the face page may have also been the operator of additional operational arrangements. This item is used to determine if the other operational arrangements were in effect in 1987. If the answer if YES, it will be necessary to assign another tract letter within the Resident Tract Record and complete a questionnaire for the additional arrangements. A new tract code should be assigned for each operation for which the segment resident serves as the operator. Each operating arrangement must involve land. Exclude joint arrangements with livestock only and no land. Land in landlord-tenant, cash rent or share rent arrangements is not considered a separate operation.

Item 6 Another person in household

This item makes sure that each person living in the household who operated a farm or ranch in 1987 will be assigned a separate tract letter. If YES is answered assign a tract letter and interview this person beginning with column 3 on page 2 of the Resident Tract Record.

EE conclusion — continued **EE**

5. *[Ask only if AREA sample; else go to 7]* In 1987, did you (the operator) operate land under any other name or land operating arrangement other than *[AREA-screening-5]*?

☐ YES ☐NO *[go to 6]*

5a. What was its name? _____

[Complete a new line on the Resident Tract Record for the additional operators.]

6. Did any other person living in this household operate a farm or ranch in 1987?

☐ YES -6a. What was his (her)name? _____

[Complete a new line on the Resident Tract Record for the additional operators.]

☐ NO

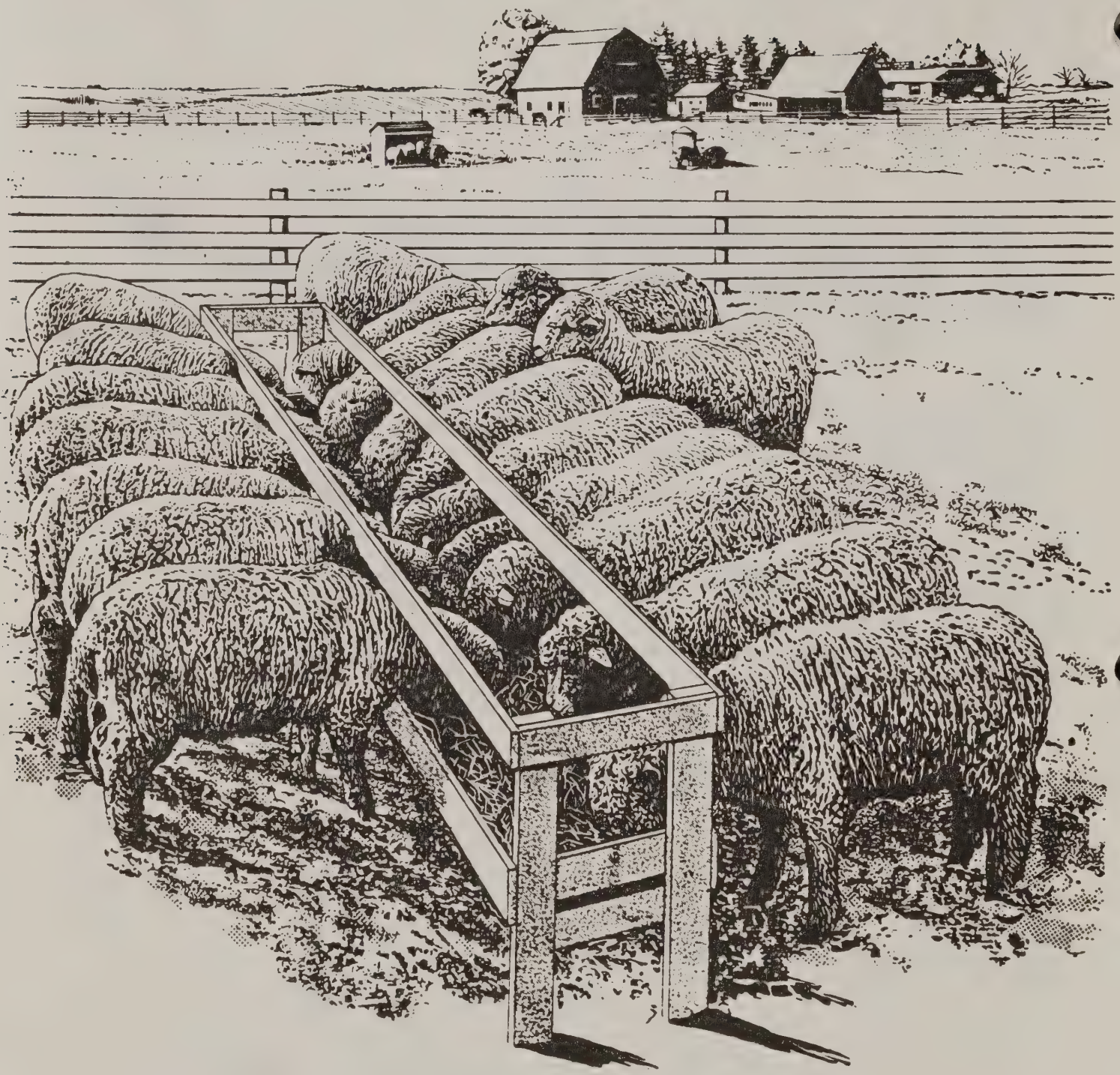
7. The results of this survey will be published in JULY. Would you like to receive a free copy?

☐ YES ☐ NO

345

[Thank the respondent for his (her) cooperation then go to back cover.]

CHAPTER 6
AGGREGATE EXPENDITURES



SECTION EE - CONCLUSION

Item 7 Release request

After completing the interview, ask the respondent if he would like to receive a copy of the results of the survey. The summary is expected to be published in July 1988.

BACK COVER

Respondent Code

The respondent code is used to identify who was interviewed or how the information was obtained.

Circle the code (1-4) of who provided the information. If the respondent was not the operator or spouse, enter the name of the person providing the information.

After leaving the respondent and as soon as possible before the next interview, carefully review each section of the questionnaire and supplements. Questions and/or comments concerning the data, interview or respondent which would help the state office should be noted. When this is completed, sign, enter your code, if it has been provided to you, and date the questionnaire. Enter the military time the interview ended with the respondent. Be certain this is greater than the beginning time entered on the face page.

BACK COVER

[check respondent]

- ☐ Operator/Manager 1
- ☐ Spouse 2
- ☐ Other *[enter name below]* 3
- ☐ Accountant/Bookkeeper *[enter name below]* 4

_____

_____

Enumerator name _____ Enumerator code 347

Date _____

[enter ending time] ..... 348 ____

quality rating

☆U.S. Government Printing Office : 1987 - 201-071/60743

CHAPTER 7
FIELD CORN
1987 FARM COSTS AND RETURNS SURVEY

Q ACREAGE and SEEDING — CORN Q

1. *[If no corn planted—see B—go to BB]*
Now I need more information about the corn planted for grain on this operation in 1987.

2. How many acres of corn were planted for grain on (irrigated, non-irrigated) land that this operation—

	— acres planted —		
	Irrigated	Non-Irr.	Total
2a. owned?	384	385	386
2b. rented on a cash basis?	387	388	389
2c. rented on a share basis?	390	391	392
2d. used rent free?	393	394	395
[Enter totals below and in right-hand column]			
2e. TOTALS	396	397	398

3. What was the (average) seeding rate per acre (one time over)? ..... pounds/acre or seeds/acre — 399 / 939

4. Did anyone's livestock graze any corn stalks after harvest?

☐ YES - 4a. How many acres were grazed? 938

☐ NO

SECTION Q - ACREAGE AND SEEDING - CORN

[Colorado, Delaware, Maryland, Pennsylvania, South Carolina and South Dakota enumerators should to Section BB, page 40 if the code box 002 at the top of the page has a "2" entered.]

Purpose — To determine the tenure of the operator's 1987 corn acreage, the seeding rate and if any corn stalks were grazed.

General — The total acres includes all owned, rented, and rent free land for which the operator makes the day-to-day management decisions. The total acres may be contiguous or non-contiguous. If the operation is non-contiguous, the operator must make the day-to-day decisions for each parcel of land in the non-contiguous operation.

Definitions for items 2a through 2e are the same for all corn planted for grain.

Item 1 — The enumerator note instructs you to go to Section BB, page 40, if no corn was planted for grain. You may need to refer to Section B, page 5, to see if any corn was reported.

Item 2a — Include land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustees of a divided estate.

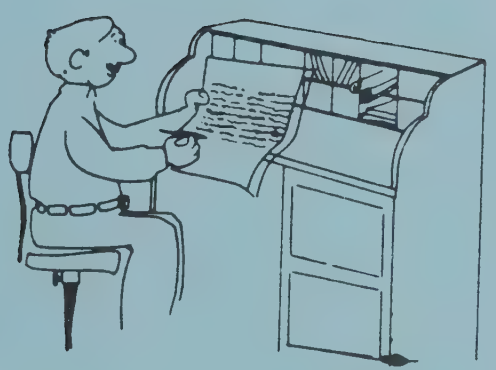
Item 2b - 2d — Include all land rented from others (private individuals, Federal, State, railroad, etc.) for which the operator used the land rent free, paid cash rent on a per acre basis, or paid for the land with a share of the corn (either standing or harvested). Record the acres of corn that were irrigated or non-irrigated by land tenure. The sum of the reported irrigated and non-irrigated acres should equal the total acres of corn planted on this operation in 1987. Data from item 2 will be used primarily to determine a land charge for the corn.

CHAPTER 7 - CORN

SECTION Q - ACREAGE AND SEEDING - CORN

Item 3 — Record the average seeding rate per acre in either pounds per acre or seeds per acre. If more than one classification of corn was planted, enter the rate for each class in the margin. The State office will compute an average. The average rate of seeding corn in the United States in 1985 was 23,500 kernels per acre.

Items 4 & 4a — Record the acres of corn that were grazed by anyone's livestock.



R CASH RENT — CORN R

1. *[If corn was not planted on cash rented land—see Q, go to S.]*

2. What was the (average) cash rent per acre for—

	— dollars per acre —	
	Irrigated	Non-Irr.
Irrigated (non-irrigated) land corn was grown on?	403	404

3. *[If corn was not planted on cash rented irrigated land—go to S.]*

4. I shall read some costs of irrigation; please tell me what percent the landlord **was or would have been** required to pay according to the agreement.

	— % —
4a. **purchased** irrigation water?	406
4b. **purchased** pumps and motors?	407
4c. **purchased** sprinkler systems?	408
4d. pumps, motor and sprinkler system **repairs**?	409
4e. power or fuel costs?	410

SECTION R - CASH RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any cash rental arrangements that this operation was involved in for the production of corn.

Cash Rent

This section should be completed of cash rented acres were reported in Section Q, cells 387 through 389. If there is more than 1 cash rent of agreement, choose the agreement involving the largest can acreage. In cases where 2 leases way qualify as largest in terms of the same number of acres, select the one that had the largest total production.

Item 1

Item 1 determines if any corn was planted on cash rented land.

Item 2

Record the (average) cash rent paid per acre of irrigated and non-irrigated land for corn. The entries should be to the nearest whole dollar.

If two or more tracts of irrigated (non-irrigated) corn were cash rented, under the same agreement, with differing per acre rent rates, compute a weighted average rent. For example, if 100 acres are rented for $60 per acre and 50 acres are rented for $40 per acre, the weighted average would be determined as follows:

100 X $60 =	$6,000
50 X $40 =	$2,000
150	$8,000

$8,000 divided by 150 acres equals $53.00 cash rent per acre.

Item 3

The enumerator note between questions 2 and 4 determines if any corn were planted on cash rented irrigated land.

SECTION R - CASH RENTAL ARRANGEMENTS

Item 4

If the operation had more than one cash rented irrigated corn arrangement, select the agreement with the largest harvested acreage. In cases where 2 leases may qualify in terms of acreage select the one with the largest total production.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

S SHARE RENT — CORN S

1. *[If no corn planted on share rented land—see Q, go to T.]*

   Now I would like some information about corn production on the **share** rented acres.

   [If more than one share rent agreement] Let's take the rental agreement with the **largest** corn acreage.

   How many acres under this agreement were planted to **corn** in 1987? 411

2. What was the LANDLORD'S percentage share of the **corn**? .....percent 412

3. *[In question 3 record what percent the landlord was or would have been required to pay according to the agreement in 1.]*

   Now I would like to record the landlord's percentage share of any chemical, harvesting, and irrigation expenses.

   What was the landlord's share for any—

	— % —
3a. fertilizer, lime and soil conditioners?	413
3b. pesticides?	414
3c. seed?	415
3d. all **harvesting** expenses?	416
3e. all **hauling** expenses?	417
3f. **purchased** irrigation water?	418
3g. **purchased** pumps and motors?	419
3h. **purchased** sprinkler systems?	420
3i. pumps, motor and sprinkler system **repairs**?	421
3j. power or fuel costs?	422

SECTION S - SHARE RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any share rental arrangements that this operation was involved in for the production of corn. With share rent, the farmer gives the landlord a percent of the harvested crop rather than cash.

Share Rental

The questions on this page refer to the rental agreement with the largest total corn acreage if the operation had more than one share rental agreement. In cases where two or more agreements may qualify as largest in number of acres, select the one that had the largest total production.

Item 1

This directs you to complete this page if any corn was planted on share rented land in Section Q, page 24.

Record the acres of corn included in this agreement.

Item 2

Record the landlord's share, in percent, of the corn.

Items 3a through 3e

Record the landlord's share, in percent, of the various input items used on the acres reported in item. Ask each item separately as the landlord's share may be a different percent for each item.

Items 3f through 3j

These questions ask irrigation costs. Leave it blank if the leased land under this arrangement was not irrigated. If the land was irrigated, the percentage paid by the landlord is to be recorded.

Determine if the specific irrigation cost item is relevant to the verbal or written agreement. If not, ask the next cost item, leaving the cell blank.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

SECTION S - SHARE RENTAL ARRANGEMENTS

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.



T FERTILIZER — CORN T

1. What fertilizer was used on the entire corn crop?
(Include all materials applied in the fall of 1986 for the 1987 crop, all primary nutrient materials and all materials paid for by the landlord.) *[Enter analysis or actual pounds in column 1.]*

(1) MATERIALS USED N	(1) P_2O_5	(1) K_2O	(2) How much was used per acre per application? 1/	(3) What was the unit *[enter code Lbs = 4 Actual Ing. = 2 Gal. = 1]*	(4) How many acres was this applied to? 2/	(5) Was it CUSTOM APPLIED? *[If YES, enter cost of application only 3/]* dollars & cents per acre
527 16	528 20	529 6	530 75	531 4	532 250	533 _•__
534 50	535 —	536 —	537 —	538 2	539 100	540 _•__
541 82	542 —	543 —	544 100	545 4	546 70	547 _•__
548	549	550	551	552	553	554 _•__
TONS OF LIME			555 5		556 200	557 _•__
TONS OF GYPSUM (LANDPLASTER)			558		559	560 _•__
MICRO NUTRIENTS		Code	562	563	564	
[Specify] Iron		561 4	1	4	200	
[Specify]		565	566	567	568	

1/ *[If actual pounds of nutrients are reported in column 1, leave column 2 blank and enter code 2 in column 3 for actual ingredients.]*

2/ *[Total acres times the number of applications.]*

3/ *[Enter application costs only in column 5. If the application costs and material costs cannot be separated, leave blank.]*

Codes for Micro-Nutr.	
Boron	*= 1*
Calcium	*= 2*
Copper	*= 3*
Iron	*= 4*
Magnesium	*= 5*
Manganese	*= 6*
Molybdenum	*= 7*
Zinc	*= 8*
Sulphur	*= 9*

SECTION T - FERTILIZER

Purpose

To obtain data on the quantities of fertilizer elements used on this operation's corn and data on custom application rates.

Include any costs for fertilizer paid for, in part, or in full by the landlord.

Columns 1, 2 and 3

The first four lines are to record the use of major fertilizer nutrients which are:

Nitrogen N

Available Phosphorus (P205)

Water soluble potash (K20)

These nutrients can be applied to a crop by several different methods, including:

(1) broadcast spreading of dry material;

(2) through an attachment to a drill or planter (this is usually dry material but liquid fertilizer can also be applied this way);

(3) through dripping liquid fertilizer material into the irrigation system;

(4) aerial application (found mainly on rice, but possible on other crops);

(5) and through chemical sprayer systems where small amounts of fertilizer are sprayed on to the foliage of a plant and absorbed through the leaves. For example, this is frequently done in cotton production and is called "foliar application."

SECTION T - FERTILIZER

Fertilizer can also be applied as plow-down prior to planting, at planting time, or as "side dressing" or foliar application throughout the growing season.

All of the fertilizer applied by these methods is to be included in this section.

Record in this section the quantities of nutrients applied per acre to corn. Use of these three nutrients can be reported in two ways: either (1) by analysis in percent of the material applied, or (2) in pounds of actual ingredients.

The common method of reporting this type of fertilizer will be by analysis, i.e. 16-20-6. When fertilizer is bought by the bag, the analysis will be printed on the front. In the first line of the example, in this section, is an illustration of this method. When the analysis is given, the first number is the percent of nitrogen, the second is the percent of phosphorous and the third is the percent of potash.

There are hundreds of different analyses of fertilizer. With mixing equipment now available, a producer can get almost any mix of fertilizer ingredients desired.

Some fertilizers contain only one nutrient, such as 0-45-0, which is 45 percent phosphorus with no nitrogen or potash. Another common fertilizer is 33-0-0, which is 33 percent nitrogen only.

SECTION T - FERTILIZER

The sum of the three analyses cannot exceed 85. Chemists cannot make fertilizer without at least 15 percent other ingredients as carriers. If a producer reports something like 35-45-20, he must be reporting pounds actual ingredients instead of analysis since the three percentages add up to 100 percent. **Just remember, the sum of the three percentages cannot exceed 85.**

A producer may say he applied 10-10-16-2. The fourth item is the percentage or pounds of a trace element which should be listed below under "other material."

The other common method of reporting fertilizer is in pounds of actual or active ingredients. In line 2 of the example, the producer reported 50 pounds of actual nitrogen, no phosphorous and no potash. In this case, he applied it to only 100 acres of corn. When a farmer reports application in pounds of actual ingredients, probe as to what type of fertilizer he applied. Some farmers are also confused on this item. He may have applied 50 pounds per acre of 0-0-33 which is only potash and would be only 16.5 pounds of actual potash. However, if he confirms that it was 50 pounds of actual potash, then you would record it as in line 2 of our example. In this case, leave column 2 blank and record a "2" in column 3.

Farmers may also report fertilizer by name. The following are some more common fertilizers with the usual analysis.

SECTION T - FERTILIZER

NAME	PERCENTAGE ACTIVE INGREDIENTS		
	N	P	K
Anhydrous ammonia	82	--	--
Aqua ammonia	20	--	--
Ammonium nitrate	33	--	--
Ammonium sulfate	20	--	--
Sodium nitrate	16	--	--
Urea	45	--	--
Super phosphate (22% & under)	--	19	--
Super phosphate (over 22%)	--	45	--
Ammonium phosphate	16	27	--
Diammonium phosphate	18	46	--
Monammonium phosphate	11	48	--
Potassium chloride	--	--	60
Potassium nitrate	13	--	44
Potassium sodium nitrate	15	--	14
Potassium sulfate	--	--	49

Anhydrous ammonia is the strongest nitrogen fertilizer available. It is a gas that must be kept under pressure (in a tank) and is injected into the ground. (It is a liquid when under pressure, but turns into a gas when released and will be lost if not injected into the soil). It is a very popular form of fertilizer because it is often cheaper than other forms. It can be reported to you as "anhydrous", as "82-0-0", or in "units of nitrogen" or as "pounds of active ingredients". Line 3, shows the use of 100 pounds per acre of anhydrous ammonia.

Aqua ammonia is one of the more common types of liquid nitrogen fertilizers. It is made up of anhydrous ammonia and water and is often found in western states. It may be reported in pounds or gallons. Although it is a liquid, it is usually reported in pounds of active ingredients.

Fertilizers applied through an irrigation system will often be reported in pounds or "units" of actual ingredients which can be recorded as on line 2.

SECTION T - FERTILIZER

Urea is also a commonly used nitrogen fertilizer because of its high analysis. It may be added through an irrigation system, usually as a nitrogen solution.

With many of the other named fertilizers the analysis may vary. Probe to determine if the farmer knows the analysis or pounds of actual ingredients applied. If he does not know the analysis, only the name, use the analysis given here, rounded to the nearest pound.

Report the amounts applied per application in columns 1 and 2. When column 1 reports active ingredients, leave column 2 blank. Multiple applications will be reflected in column 4, where total acres equals the number of acres times the number of applications.

Lime

Lime is usually applied broadcast as a dry material but wet limes are also available. The rates of application will be in tons per acre. It is used to reduce soil acidity. Use of lime will be concentrated in areas east of the Plains States. Very little is used in the West.

Gypsum (Landplaster)

Gypsum, or calcium sulfate, is used mainly by peanut growers. It's used to loosen heavy clay soil, and more importantly to supply calcium. It is usually applied in tons.

Micro-Nutrients

A producer may say he applied 10-16-16-2. The fourth item is a trace element or micro-nutrient. Materials which may be listed in this section include trace fertilizer elements such as iron, boron, magnesium, etc. Record the name of the material, code column 1 according to the codes shown and record the quantity used per acre.

Many different trace elements may be used. These can be used on any crop and more likely on irrigated fields. The quantities applied are usually small, sometimes only one pound or less per acre.

SECTION T - FERTILIZER

Column 4

For all materials reported, we need to record the acres to which this material was applied. It may have been applied to all the acres or only a portion of the acres. If a fertilizer was applied to the same acreage more than once, add the acreage for each application. However, remember that the type of fertilizer and the application rate must be the same to allow acres to be added together.

Many fertilizer companies (and private consultants) conduct field soil tests and may recommend slightly different fertilizer applications for each field, based on the soil analysis. The farmer may have a set of receipts showing quantities and timing of fertilizer applications separately but obtain the farmer's best estimate of the average composition of fertilizer, and adjust the acreage to reflect the number of applications.

In line 1 of the example, the operator reported using 75 pounds per acre of 16-20-6 on 200 acres, but he applied it twice to 50 acres at the same rate, hence we recorded a "250" in column 4.

Column 5

For materials containing N, P, and K and lime and gypsum, record the cost of custom application only in column 5. Data on the cost of these materials is not needed. These prices will be obtained from NASS' "Agricultural Prices" release. If the material is applied by the operator, column 5 should be left blank.

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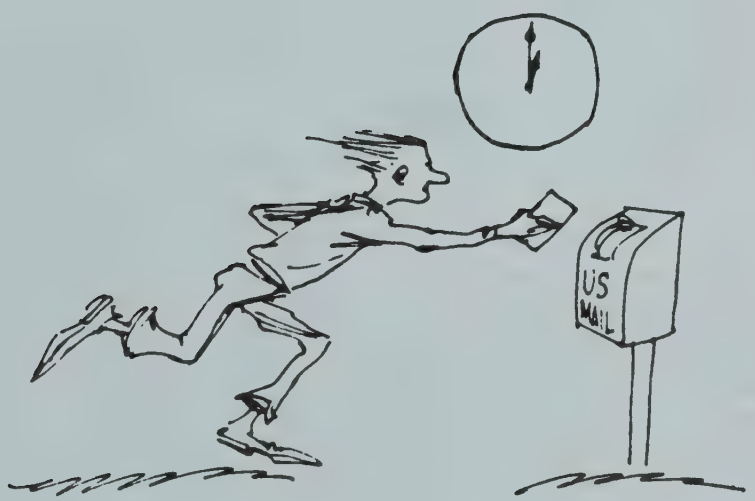
Note: When a material is custom applied, this operation should be excluded from Section X (Field Operation), page 32. When a material is applied by the operator, this operation should be included in Section X.

****

SECTION T - FERTILIZER

Also leave column 5 blank if the material was custom applied but the operator cannot divide the cost between materials and application costs.

If trace minerals are applied, they are generally mixed with the N, P and K fertilizer and are not applied separately. Do not double count any application costs already reported for N, P or K.



U PESTICIDES — CORN U

1. How many acres were treated with—*[exclude seed treatments]*

	— acres —
1a. herbicides?	423
1b. insecticides?	424

2. *[If 1a and 1b BOTH none, go to 4, else, ask for products used in chronological order. If 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

3a. Was it applied before (code = 1), during (= 2) or after (= 3) planting? *[enter code]*	3b. What was applied? *[use codes on next page]*	3c. Was it custom applied? *[enter code]*	3d. How many TOTAL acres were treated? 1/	3e. How was it applied? *[broadcast-ground = 1, broadcast-air = 2, in-furrow = 3, band in/over row = 4, directed spray = 5, irrigation water = 6, spot treatment = 7]*
428	429	430	431	432	433	434
435	436	437	438	439	440	441
442	443	444	445	446	447	448
449	450	451	452	453	454	455
456	457	458	459	460	461	462

1/ Total acres times the number of applications.

	— acres —
4. How many acres of corn received no pesticide treatment in 1987?	518

SECTION U - PESTICIDES

DEFINITIONS

Herbicide - a chemical agent used to destroy or inhibit weed growth.

Insecticide - a chemical agent used to destroy insects.

Items 1a and 1b

Record the number of acres to which herbicides and insecticides were applied.

Item 2

This screens to determine if no herbicides and insecticides were applied. If so, go to item 4.

Item 3a

Herbicide products can be applied before, during or after planting. Insecticide products are generally applied during or after planting. ASK the respondent to start with before-planting treatments then go through the sequence ending with after-planting treatments.

Before Planting

The herbicide or insecticide product is applied to the field before the corn is planted. This may occur the same day or week or several months before planting. If a tillage implement is used to incorporate the herbicide or insecticide into the soil, be sure to record it in the field operations section (Section X), page 32.

During Planting

The KEY is that the herbicide or insecticide is applied to the field during the planting operation. This may be accomplished with spray tanks mounted on the side or rear of the tractor. Corn rootworm insecticides are generally placed in a box on the planter and applied to the soil through a separate tube.

DO NOT RECORD SEED TREATMENTS. Most corn seed is treated with insecticides and fungicides by the seed company prior to packaging and sale to farmers.

SECTION U - PESTICIDES

After Planting

The herbicide or insecticide material is applied after the planting operation is completed. They could be applied a few days or several weeks later. Herbicide materials applied after planting but before weeds emerge kill the seedling as it germinates. Herbicides applied after the weeds have emerged are applied to the foliage and the plant is killed by translocation. Insecticide materials are applied to control foliage feeding insects such European corn borer, corn earworm or fall armyworm.

Item 3b

Most of the herbicide and insecticide products used in corn production are listed in Section U, page 29. If the respondent indicates a product not listed, record under OTHER and specify the products trade name. This will enable later identification of the product. The product code or codes are to be recorded in columns 2, 3, and 4.

Most herbicide and insecticide applications used in corn production are applied to the field as single products, HOWEVER, 2 or more individual products are mixed in the spray tank and applied to the field. In addition, there are also brand name products that contain 2 or more active ingredients.

DO NOT confuse tank-mixes and packaged premixes.

TANK-MIXES -- on the same line record the product code for each separate material mixed in the spray tank. If the tank-mix of AAtrex + Lasso was the first application made to this field you would record on line 1 -- code 101 in column 2 and code 109 in column 3.

PACKAGED PREMIXES -- these are products where the manufacturer has taken individual active ingredients and combined them in a container for sale to farmers. Examples include Lasso/atrazine and Bicep (Dual & atrazine).

SECTION U - PESTICIDES

Each one of these premixes has been given a unique code on the questionnaire. If the farmer used the premix Lasso/atrazine you would record code 118 in column 2.

Item 3c — Code a YES= 1 or a NO = 2 if the product was custom applied.

Item 3d — Record the TOTAL acres treated with the product or Tank-mix. If the same herbicide or insecticide product is applied to a field more than once, multiply the acres treated by the times applied and record the TOTAL acres in 3d (col. 6). For example, if 2, 4-D was applied 2 times to 100 acres, record 200 acres in 3d (col 6.).

Item 3e — Herbicide and insecticide materials can be applied as broadcast treatments using either ground equipment or an aircraft, in-furrow with the corn seed, banded in/over the corn row, or as directed sprays at the base of the corn plant. Some farmers may apply material through the irrigation system.

BROADCAST treatments are when the entire surface area of the field is sprayed with a herbicide or insecticide product. Broadcast application is the most widely used product. Broadcast application is the most widely used method for applying products used in corn production.

BANDED treatments are when only the area over the crop row is sprayed with the herbicide or insecticide material. The area between the corn rows is not treated. At planting or before emergence of weeds or corn, herbicide applications are made by spraying the product a 10 - 13 inch band over the corn. After emergence of the weeds or corn banded applications are made with the use of drop nozzles that direct the herbicide spray at the base of the corn plant under the leaf canopy. When banded herbicide treatments are used, weed control in the row middles is accomplished with mechanical cultivation.

U pesticides — corn — continued U

HERBICIDES	
AAtrex, Atrazine, Nine-0	101
Banvel	102
Bicep	103
Bladex	104
Buctril, Brominal	105
Dual	106
Eradicane	107
Eradicane Extra	108
Lasso, Lasso II	109
Paraquat + Plus, Gramoxone	110
Prowl	111
Princep, Simazine	112
Ramrod	113
Roundup	114
Sutan +, Genate Plus	115
Sutazine	116
2, 4-D	117
Lasso-atrazine	118
Other	119
[specify] _____	

INSECTICIDES	
Ambush, Pounce	201
Broot	202
Counter	203
Cygon	204
Cythion, malathion	205
Dyfonate	206
Furadan	207
Lorsban	208
Mocap	209
Pydrin	210
Sevin	211
Thimet	212
Other	213
[specify] _____	



SECTION U - PESTICIDES

Banded insecticide applications are generally made at planting time. The insecticide product, generally in granular form, is placed in a 4 - 6 inch band directly behind the planter shoe and in front of the press wheel.

IN-FURROW treatments are infrequent but are sometimes used for insecticides applications. The product is placed in the seed furrow or over the top or to the side of the seed row at planting time through a separate attachment on the planter. DO NOT confuse this with seed treatments where the seed surface is coated with a pesticide product by the seed company before the corn seed is sold to the farmer.

SEED TREATMENTS are not to be recorded.

SPOT treatments are when the herbicide or insecticide is only applied to a portion of the field. Spot herbicide applications are generally made to control problem weeds such as thistle, leafy spurge, quackgrass, etc. Spot insecticide applications are sometimes made to control grasshoppers in the edges of the field.

Item 4 Record the total acres of corn which received no pesticide treatments in 1987.

V TRACTORS — CORN V

1. Now I would like to list the make and model of all the tractors used on the corn crop.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors provided by custom operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					— [If OWNED] —		
LINE NO.	[enter make and model]	WHAT WAS IT'S— Drive? [enter code 2WD =2 4WD =4 Craw =5 4W ASST =6]	PTO HP?	Fuel type? [enter code]	How many total hours was it used for all uses?	Was it bought since JAN. 1, 1981? [If YES ——————] When was it bought?	What did it cost?
1	Int. 4366	569 4	570 195	571 3	572 1000	573 83	574 50000
2	JD 4050	575 2	576 100	577 3	578 600	579 84	580 41500
3	JD 4020	581 2	582 95	583 3	584 1000	585 —	586 —
4		587	588	589	590	591	592
5		593	594	595	596	597	598
6		599	600	601	602	603	604

SECTION V - TRACTORS

Purpose The purpose of this section is to inventory all tractors used for the production of corn on this operation in 1987.

Item 1 Include tractors that were owned, rented, leased, or borrowed. Tractors owned in partnership should also be included. Exclude tractors used exclusively for custom work.

Column 1 The pre-printed line number will be used to identify tractors used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 List the make and model for each tractor, such as John Deere 4050. It is important that you get both accurately as the horsepower may need to be verified in the State office based on the make and model. If more than 6 tractors were used, record these tractors at the bottom of the page.

Column 3 Enter the code for the type of drive for the tractor lists in column 2.

Type of drive:

2=2WD - Two wheel drive - conventional rear wheel drive.
4=4WD - Four wheel drive - power is transmitted to all four wheels, full-time.
5=CRAW-Crawler - track-type tractor.
6=4W ASST - Front wheel drive option or front wheel assisted. Power can be shifted to the front wheels for four wheel drive as needed.

Column 4 Record the horsepower (PTO) rating. If the operator does not know the rating, obtain his best estimate and write note in margin.

Column 5 Enter the code for the type of fuel used.

Gasoline = 2
Diesel = 3
LP gas = 5

SECTION V - TRACTORS

Column 6 — Record the operator's best estimate of the total hours the tractor was used in 1987 for all purposes. Leave blank if the tractor was leased, rented or borrowed.

Columns 7 and 8 — If any of the tractors listed in column 8 were purchased, new or used, by the operator since January 1, 1981 record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

W TRUCKS — CORN W

1. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for corn.]* 503 2

1a. What was the average number of miles driven per pick-up for **farm use only**?.....miles 504 6500

2. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for the production of corn.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom operators.)

		TRUCKS					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[If OWNED]*		*— [If OWNED] —*	
LINE NO.	*[enter make]*	Fuel type? *[enter code]*	Size? *[enter code single axle =1 tandem axle =2 semi =3]*	What were the total miles driven for FARM USE?	What percent was for corn?	Was it bought since JAN. 1, 1981? *[If YES ——————]* When was it bought?	What did it cost?
7	GMC	605 2	606 1	607 4000	608 50 %	609 82	610 5000
8	White	611 3	612 3	613 7500	614 100 %	615 — —	616 —
9		617	618	619	620 %	621 — —	622
10		623	624	625	626 %	627 — —	628
11		629	630	631	632 %	633 — —	634
12		635	636	637	638 %	639 — —	640

SECTION W - TRUCKS

Purpose — The purpose of this section is to inventory all trucks used for the production of the corn on this operation in 1987.

Item 1 — Record the number of pick-up trucks that were owned, leased, rented or borrowed.

Exclude pick-up used by custom operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

Item 1a — Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 2 — Include trucks that were owned, rented or borrowed. Trucks owned in partnership should also be included. Exclude trucks used by custom operators who supplied their own trucks or trucks owned by the operator and used exclusively for custom work. Exclude pick-ups.

Column 1 — The pre-printed line number will be used to identify trucks used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 — Enter the make of each truck to ensure that all trucks used during 1987 for the production of corn. For ease of enumeration, you may wish to progress from smallest to largest.

Column 3 — Enter the code for the type of fuel used.

Gasoline = 2 Diesel = 3 LP Gas = 5

Column 4 — Enter the size code for each truck.

Single axle = 1
Tandem axle = 2
Semi = 3

SECTION W - TRUCKS

Column 5 — Record the operator's best estimate of the total number of miles driven in 1987 for farm related purposes for each truck listed. If the truck was rented or borrowed, then leave this column blank.

Column 6 — Record the operator's best estimate of the percentage of miles driven in column 4 used for the production of corn.

Column 7 and 8 — If any of the trucks listed in the column 2 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.



X FIELD OPERATIONS — CORN X

1. Please describe field work performed, by machine only, on the corn, beginning with the first activity after harvest of the preceding crop. (Include all field operations. Include chemical and fertilizer applications self-applied. Exclude all custom operations.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[enter field operation or equipment used]	*[enter machine code if used]*	What size was it?	*[enter unit] 1/*	*[enter line no. of tractor or truck used] 2/*	How many acres were covered? *3/*	*[if OWNED ——————]* Was it brought since JAN. 1, 1981? NO-*[list next operation.]* YES-*[continue.]* When was it bought?	What did it cost?
Plow	641 6	642 4	643 3	644 1	645 300 ~~200~~	646 —	647 —
Disk	648 11	649 18	650 1	651 1	652 400	653 —	654 —
Plant	655 105	656 18	657 1	658 3	659 ~~310~~ 210	660 81	661 750
Fert.	662 77	663 —	664 —	665 658	666 —	667 82	668 250
Herb	669 91	670 —	671 —	672 658	673 —	674 84	675 200
Fert.	676 70	677 35	678 1	679 2	680 200	681 —	682 —
Combine	683 122	684 20	685 1	686 99	687 200	688 —	689 —
~~Plow~~	690 6	691 4	692 3	693 1	694 100	695	696
Disk	697 16	698 18	699 1	700 2	701 200	702 —	703 —
~~Plant~~	704 100	705 18	706 1	707 3	708 100	709	710
~~Fert.~~	711	712	713	714	715	716	717
Combine	718 120	719 20	720 1	721 99	722 —	723 —	724 —
	725	726	727	728	729	730	731
	732	733	734	735	736	737	738
	739	740	741	742	743	744	745

1/ [Feet = 1, Row = 2, Moldboard = 3.]
2/ [For horse or mule drawn, enter 77; for self-propelled enter 99.]
3/ [Record total acres for all times covered, i.e., disked 100 acres 3 times = 300 acres covered.]

Supplements	
009	—

SECTION X - FIELD OPERATIONS

Purpose

The purpose of this section is to establish what machinery and equipment was used by this operation for the production of corn.

Field Operations or Equipment

Crop Abandonment and Acreage Reduction Programs

If any of the corn was abandoned due to natural causes, all operations performed on the corn until (and except) plowing under should be included but not the operations of preparing the seedbed or planting of a replacement crop not enumerated. For instance, if a producer planted 125 acres of corn, and later replanted 60 acres to soybeans, you should show field operations for planting 125 acres plus all the associated tillage but exclude the seedbed preparation of planting of the 60 acres of soybeans. You should follow through to harvest on the remaining 65 acres of corn, but drop the 60 acres that were replanted to soybeans.

If he re-seeded to corn, all operations would be reported since this is still corn.

Field operations on corn which was later destroyed to comply with a government program or the operations after compliance should be excluded here.

For example, if a producer planted 100 acres of corn but later destroyed 15 acres, only the operations on the 85 acres that were kept in production should be counted.

This section should be completed by having the operator describe all of the field operations performed on the corn. A machine code sheet is provided for you to give to the respondent. The machine code sheet (SC-4) contains a listing of most machines used in field operations. Let the respondent give you the codes of the machines he used.

SECTION X - FIELD OPERATIONS

Column 1 — Record the operator's oral listing of the machines used, such as plow, disk, harrow, combine, etc. If any machine operation is reported for which a machine code is not available, be as descriptive as possible in the margin as to the machine used or ask the farmer if the machine could be described as some type of one of the listed machines.

Column 2 — Using the machinery list provided SC-4, (yellow), enter the proper code for the machine. Since the operator has a copy of the machinery list, he may choose to find the codes for you. If two machines are pulled together (in tandem), list the first implement in column 2. The second or third tandem equipment requires additional lines and are discussed on the next page.

SECTION X - FIELD OPERATIONS

Columns 3 and 4

Enter in column 3 the size of the equipment listed in column 1. Enter both the width of the area covered by the equipment on one pass over the field and the code specifying the unit of width. Size relates to the swath covered by the machine and not necessarily the structural width of the equipment. For instance, a broadcast fertilizer spreader may be only 6 feet wide but it spreads fertilizer over a swath of 30-40 feet. In this case, 35 feet would be an appropriate entry.

Column 5

Enter the line number of the truck or tractor from the previous sections used to pull the equipment. If the equipment were self-propelled, enter a "99". If two tractors were used simultaneously to pull one piece of equipment, write a note at the bottom of the page. If horses or mules were used to pull the equipment, enter a "77".

Column 6

Record the total acres covered for all times this machine was pulled by the truck or tractor listed in column 5. For example, if 100 acres were disked 3 times enter 300 acres in column 6.

For land forming equipment, column 6 should be left blank. These machines are used to make or close ditches and the entire field acreage is not covered. All that needs to be recorded is which of these specific machines are used on the corn.

Columns 7 and 8

If any of the equipment listed in column 1 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

SECTION X - FIELD OPERATIONS

Questions recorded in this section with regard to fertilizer and chemical applications should agree with that reported earlier in Sections C, page 7, and U, page 28. For example, if a fertilizer was reported in section C as self-applied, then the operation of applying this fertilizer should appear here. If in section U a chemical was reported as custom applied, then the operation of applying this chemical should not appear here. It may help to finish this section by asking the operator what operations, if any, were missed.

It should already have been noted that this year we are not subsampling within a crop. For example, all the COP questions refer to the average practice without regard to cropping practice. A corn farmer may have both irrigated and non-irrigated acres on the same operation. If the operation has more than one cropping practice for the same crop and the field operations are different for each, start with the largest acreage and get the pertinent information. Then choose the next largest acreage and continue. If the field operation and the machines used are identical, go to the earlier line describing the machinery and add in the additional acres. There are two very important aspects to this section: 1) we need to identify every machine and the total acres it covered; and 2) we need to know the cost if purchased after January 1, 1981.

In this example the farm had 300 acres of corn, 200 were irrigated and 100 were dryland. Field operations were slightly different between the two. To handle this type of mixed situation, start with the largest acreage or in this case the irrigated acres.

SECTION X - FIELD OPERATIONS

The farmer says he plowed all 200 acres with a regular, 4 bottom plow, using the International tractor. To code this, write "plow" in column 1 and enter machine code 6 in column 2. Enter 4 in column 3 and 3 in column 4 to show the size as 4 bottoms or moldboards. The tractor was from line 1 on page 30 so enter a "1" in column 5. The farmer plowed all 200 acres once, so enter 200 in column 6. He bought the plow prior to January 1, 1981, so leave columns 7 and 8 blank.

The farmer then reported the other operations, including tandem for the irrigated acres and these are shown in the example.

Now go to the non-irrigated acres. When the farmer reports an identical (same machine and tractor) operation to one already listed, go to the line where it was originally listed and add in the additional acres. If the machine or tractor are not identical to what was previously listed, list it separately.

Begin with the first operation performed after harvest of the preceding crop. This will probably consist of a stalk shredding or a tillage operation depending upon the previous crop. This will be performed in the fall of 1986 or the spring of 1987 and after harvest of the 1986 crops. In the case of crops grown on fallow, the field operations listed should include the fallow operations. Fallow is defined as 12 months without a harvested crop.

Exclude custom operations and operations involving hauling of the crop. Include the raking, baling and hauling of straw bales, where applicable.

SECTION X - FIELD OPERATIONS

Tandem Field Operations

In many cases a farmer will perform 2 or more field operations at the same time. For example, in the 1984 FCRS for rice, it was not uncommon to find a spike tooth harrow connected to a field cultivator, both pulled simultaneously by the same tractor. Fertilizer and chemical applicators are other examples of common tandem operations.

In this year's FCRS we are recording tandem operations the same as in 1986. The reason for this is that by asking equipment purchase prices (column 8), we need each separate item of equipment more fully identified.

Therefore, when the farmer reports a tandem field operation:

1. Record the first piece of equipment as you would any other piece.

2. On the next line, record the machinery code of the second piece of equipment (the tandem operation) in column 2. Skip columns 3 & 4.

3. In column 5 enter the cell number where the line number of the trucks or tractor pulling the pieces is recorded. This will tell us which trucks or tractor is providing the power. Skip column 6.

4. Enter the year purchased and purchase price, if applicable.

5. If a third, fourth, or more pieces are used in tandem, repeat 2, 3, and 4.

Be sure information and each column is obtained (including columns 7 and 8 if the equipment was purchased since January 1, 1981) for every piece of equipment used to grow the corn.

SECTION X - FIELD OPERATIONS

In completing this section, it is recommended to start after harvest of the preceding crop and go through in order of the operations performed through to harvest of the corn. However, if you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine are the same.

The table has space for only 15 pieces of equipment. If more space is needed, use the worksheet (WS-7) provided.

Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

SECTION X - FIELD OPERATIONS

DESCRIPTION AND CODES OF FARM IMPLEMENTS

PLOWS

Chisel Plow (1)	A primary tillage machine either integral or trailing that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used ranging from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 10 inches.
Coulter-Plow (2)	A multi-purpose machine with one or two ranks of coulters, usually smooth or notched rim, followed by two or three ranks of chisel standards with a wide selection of ground engaging tools. The main purpose of the coulters is to cut through the crop residue in order to reduce plugging of the chisel standards. This is a primary tillage tool.
Subsoil Plow-Subsoil Chisel, V-Ripper (3)	A heavy tillage tool either toolbar mounted or trailing that has from one to 13 heavy shanks often with a parabolic curve. These shanks standards usually are fitted with replacement chisel points and can penetrate the soil up to 22 inches. The standards can be fitted with various auxiliary tools such as knives or lister bottoms. This allows the machine to deep-rib the soil and form beds at the same item.
Deep Ripper (4)	Similar to V-Ripper. For deep plowing.
Disk Plow (5)	A machine that does essentially the same work as the moldboard plow but has from one to ten large discs set at an angle to the direction of travel. The discs are mounted on individual beams or shanks. It is used in hard ground and where a regular moldboard plow does not scour well.

SECTION X - FIELD OPERATIONS

Plows (Continued)

Moldboard Plows (6 & 7)	A machine with one or more (up to 18) curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble. Moldboard plows may be made with one set of moldboards or with two sets. The two-way plows have two sets of moldboards, one left-handed and the other right. This allows the plow to be rotated so that all of the soil can be turned in the same direction. This eliminates dead furrows etc. This plow is especially used in irrigated areas to help maintain the level and slope of a field for furrow or bench irrigated.
Stubble-Mulch Plows (8)	Usually a tool bar or trailing machine with one or more standards that can be fitted with sweeps of various angles of penetration and several widths. Does not turn the soil over. Slightly mixes soil and stubble. (Noble blade).
Disk-Chisels (10)	A multi-purpose machine essentially a single disk followed by two or more ranks of chisel shanks.
Offset Disk Light-or-Heavy Duty (11 & 12)	A simple offset disk is the equivalent of one side of a tandem. All discs in each rank throw the soil in the same direction. Offset disks may vary in size from five feet to 35 feet or larger. The larger offsets have several disc units in each rank in order to gain flexibility. Types of disc blades may be cone or spherical and have diameters as large as 30 inches for extra heavy duty conditions. Offsets have several disc units in each rank in order to gain flexibility. Type of disc blades may be one or spherical and have diameters as large as 30 inches for extra heavy duty conditions.

SECTION X - FIELD OPERATIONS

Plows (Continued)

One-way (Disk-Tiller) (13)	A machine used mainly in the plains and Northwestern areas as a primary tillage tool. It mainly consists of a series of spherical disc blades, 20-60 inches in diameter, set on a single solid shaft. This machine throws the soil all in one direction. Sizes range from ten to twenty feet with multiple hitches available. One-ways have been replaced to some extent by chisel plows in many areas.
Single Disk (14)	Two sets of disc blades that throw the soil out from the center when angled. Size may vary from five to 40 or more feet. Used primarily as a secondary tillage tool. Most single disks have been replaced by tandems, offset or chisel plows.

DISKS (DISK - HARROW)

Tandem-Disk (Regular, Plowing or Heavy Duty) (15 & 16)	Two gangs of disc blades hitched in tandem; the front set throws the soil outward and the rear set throws it inward - width of cut may vary from 5 feet up to 35 or more feet. The blades may have different spacing between blades. 7, 9, and 11 inches are most common. The diameter of each blade may vary from 16 to as much as 24 inches. The shape of each blade may be either cone or spherical in shape. The cone blades are mainly for use in heavy soil conditions for primary tillage. These machines may be integral, 3 point hitch mount, trailing, double tandem or other configurations.

CULTIVATORS

Field Cultivator (20)	An implement similar to the chisel plow except of lighter construction and with the shanks closer together, about six inches overall. The shanks are usually of a spring steel, vibra-shank type. Ground engaging tools may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

SECTION X - FIELD OPERATIONS

Furrow-out Cultivator (21)	A row cultivator of the shovel variety where a fairly large shovel is placed to operate between the rows and open a furrow for irrigation. Thus, weeds are cultivated out and irrigation ditches are formed in one pass.
Rotary Hoe (22)	A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap. Rotary hoes are usually pulled at speeds of 6 mph and above and may be hitched to cover up to 50 feet or more.
Row Cultivator (Shank, Rolling, Lister, Disk) (23 & 24)	An implement with shanks arranged in such a manner that rows of crops can pass through without damage while the weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from one to twenty-four rows. Most are rear tool-bar or front mounted on tractors.
Field Conditioner, Seed Bed Conditioner, Soil Conditioner, Scratcher (30)	A lightweight wheeled tillage tool, usually two or three bars or ranks of spring steel teeth spaced 12-18 inches apart on the bars. Tine-tooth attachment available 30-60 feet wide.
Finishing Harrow (31)	Spiral cutting blade reels followed by spike teeth or field cultivator shanks, (2 or more ranks) possibly another rank of spiral knives and a smoothing board of wood or steel.

SECTION X - FIELD OPERATIONS

Flex-Tine Tooth (Coil Tine) (32 & 33)	Usually 5.5 to 6 foot sections of five bars or ranks. Teeth are spring steel about 5/16" in diameter and usually about 10 inches long. Teeth are formed in a spring coil and bolted to the bar, or set in rubber and bolted to the bar. Usually 50 teeth for 6 foot sections. At field speed, 3 1/2-5 mph, the tines vibrate in a circular motion to break clods, smooth seedbeds and kill weeds. Can be hitched up to 10 sections in one unit.
Rail, Pipe, Plank, Etc. (34)	Makeshift device used alone or in tandem with another implement to smooth soil or crunch clods.
Rod Weeder (35)	A steel rod usually square, 7/8 or 1 inch diameter-rotating in bearings on shanks. Rotation of rod is in reverse direction. Power for rod rotation is either from the drive wheels on the machine or hydraulic from the tractor. Some makes have a free-wheeling rod. Sections are normally 10 ft. wide but can be found to make-up units to 80 ft. Used in summer fallow areas and on relatively rock-free ground.
Roller Harrow (36)	Two ranks of packer rollers (smooth "vee" toothed "vee", crow foot, sprocket, birdfoot, or serrated type). Two or more ranks of chisel type teeth in between. Packer roller wheels turn independently of each other. 10-16 feet in size.

HARROWS

Spike Tooth (37)	Usually 5-6 foot sections of five bars or ranks with 7-8 steel spikes or teeth per bar. Angle of spikes is adjustable. Can be hitched up to 8 or 10 sections in one unit.

SECTION X - FIELD OPERATIONS

Spring Tooth Harrow (38)	Usually built in sections - 3-4 feet in width. Some wheeled models have a ten foot center section with wings to make up to a 57 foot machine. Teeth are spaced 12 inches on center on 3 bar models and 18 inches on 4 bar models. The teeth are spring steel and about 1 3/4 inches wide with a single or double curve. Points are replaceable on many models. The wheel-less, drag models have metal skids for transport and depth control.

BEDDERS

Disk or Lister Bedder (41)	An implement, usually 2 to 8 row used to make beds for seed planting using either disk blades or lister bottoms. Can be used with planters to plant either on the bed or in the furrow. Also used to break or "bust" the beds.
Bedder-Shaper (42)	A bedder with a forming device that flattens or shapes the bed in preparation for seeding. Shapers are sometimes used as a single toolbar implement. Planters may be attached.
Lister (Middle Buster or Breaker (43)	Same as bedder but lister (plow type) bottoms. Different types of bottoms available (hard land, general purpose, soft land and planter sweeps).
Rotovator-Bedder (44)	Same as disk or lister bedder except uses PTO powered knives to form beds.
Seed Bed Roller, Flat Roller (45)	Flat or concave rim wheel rollers. Used to pack soil in rows immediately before or after planting.

SECTION X - FIELD OPERATIONS

Subsoil-Bedder (Ripper-Hipper, Tiller, No-till Disk Bedder) (46)	Any type bedder either attached to a subsoil shank or as a separate bedder attached behind a subsoiler shank.

PACKERS

Culti-Packer (Pulverizer) (50)	An implement with a series of heavy crowfoot, inverted V-rim or serrated rim wheels running independently on a shaft. May be a single or tandem unit. Main uses of this implement are to firm the seed beds and reduce the size of clods and lumps of soil.
Plow Packer (51)	A packer designed to be pulled behind a moldboard plow with or with our a drill. Packer unit, may be spiral rod, crowfoot, inverted V, cogged or other.
Roller Packer (52)	Smooth roller or flat wheels on a shaft used to firm the seed bed and crush clods. May be home-made.

SECTION X - FIELD OPERATIONS

MISCELLANEOUS TILLAGE

Landall, Do-all (60)	A multi-tillage machine made up to 2 to 4 ranks of shovels, disks, coulters, blades or basket rollers.
Mulch-Treader, Picker-Treader (61)	Implement with tined wheels on a gang shaft that can be angled like a section of a tandem or single disk. Can be set up as a separate machine or as an attachment behind a stubble mulch plow. Tined wheels resemble rotary hoe wheels.
Roto-Tiller (62)	A series of bolo or slicer blades attached to a rotating shaft. Used as a primary or secondary tillage implement. Can be used in tandem with planting equipment as a minimum-till system. Mounted motor or PTO powered.
Roterra, Lely (63)	A machine with several sets of counter-rotating vertical tines that rotate with an overlapping action. The result is a stirring action; top soil remains on top, the soil is not turned over. Various attachments such as planters and sprayers are available. Tillage, planting, pesticide application and incorporation is possible in one trip.
Sand-fighter (64)	An implement used as an aid in controlling wind erosion. Essentially a shaft or bar with a frame and bearings to allow the shaft to rotate. Blades or teeth, about ten inches long and 2-3 inches wide, are welded to the shaft at intervals. The teeth enter the soil as the machine is pulled forward. This digging action roughens the soil and retards wind erosion. Sizes range up to 24 rows (72 ft).

SECTION X - FIELD OPERATIONS

FERTILIZER APPLICATORS, TRACTOR MOUNTED

Anhydrous (70)	Not very common. Supply tank tractor mounted with chisel shanks and injections on tool bar.
Dry (71)	(Includes lime and gypsum applicators) - Three point hitch mounted single or dual spinners with supply tank. Pneumatic - air delivery system through hoses to soil surface or below surface with hollow hoe shanks. The supply and distribution system is mounted on a tool bar. Drill Type- Drill type hopper with agitator and metering device to drop material on the surfaces of the soil.
Liquid (72)	Usually spray nozzles or injector units on a total bar. Tanks mounted on tractor.

FERTILIZER APPLICATORS, TRAILER MOUNTED

Anhydrous (73)	Usually a 2 or 4 wheel supply trailer feeding a chisel plow with injector tubes on each shanks. Can be high or low pressure type.
Dry (74)	(Includes lime and gypsum applicators) - Distributes the material by revolving spinner, pneumatic system through tubes to soil surface or below and the agitator metered bottom drop drill type.
Liquid (75)	Various configurations of two or four wheel trailers. Most use a boom with spray nozzles to surface or foliage apply the material. PTO or mounted engine powered.
Aerial, Fixed or Rotary Wing (76)	Airplanes or helicopters with fertilizer distribution attachments. Not too common.
Attachment to Implement (77)	Usually drop dry type attached to a drill or planter but may be liquid or gas type that is injected into the soil.
Manure Spreader (78)	Any type, apron with rear beater, flail or liquid spreader with pump spreader.

SECTION X - FIELD OPERATIONS

Self-Propelled (79)	A self-powered implement; may spread dry or liquid fertilizer, usually dry.
Truck Spreader (80)	Any method of application that is mounted on a truck. These usually are dry-broadcast type spreaders.

CHEMICAL APPLICATORS

Aerial (Fixed or Rotary Wing) (90)	An airplane or helicopter fitted with tanks and a spray boom to apply pesticides at very low altitudes.
Attachment to Implement (91)	Granular or liquid spray unit attached to a tillage, cultivator or seeding implement.
Large Self-Propelled or Truck (92)	Large converted truck or specially built machine to spray liquid or apply dry chemicals.
Motor Cycle Sprayer (93)	A small spray unit mounted on a 3-wheel motor vehicle. Spray with a boom, with hand held guns or wiper type. Mostly used for spot spraying.
Small Self-Propelled Sprayer (94)	Light weight self-propelled implement, (Spra-Cope) to be used on field crops such as wheat or barley.
Small Truck (Pick-up with Slide-in unit, Skid-in) (95)	Spraying mechanisms can be liquid boom, wiper, recirculating, micro-spray or dry spinner or tube delivery.
Tractor Mounted (96)	Supply tanks and spreading mechanism mounted on a tractor. Material may be spread by booms, recirculating sprayers, rope or wick wipers, row type nozzles or air blast. Facilitates spraying while cultivating.

SECTION X - FIELD OPERATIONS

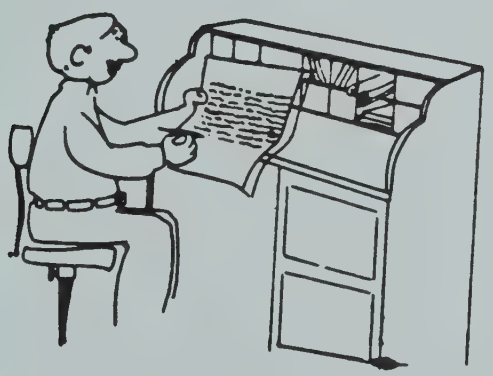
Trailer Mounted (97)	Supply tanks and spreading mechanism mounted on a trailer pulled by tractor or other power vehicle. All types or spreading mechanisms.

DRILLS AND SEEDERS

Aerial Seeding (100)	Seeding by either fixed or rotary wing aircraft. Used some in rice areas and experimentally with other crops.
Broadcast Seeder (101)	Spinner type seeder, either tractor mounted (PTO or electric) or trailer mounted (wheel driven).
Drill-Air Delivery (102)	Same as conventional drill except seed is taken from a supply box through a manifold and blown by air through tubes to the seeding points.
Grain Drill (Hoe, Lister Shovel) (103)	Use lister bottoms, shovels, or hoes to prepare soil for seeds.
No-Till, Minimum-Till Drill, Zero- (Conventional) (104)	Usually fluted or ripped coulters that open up narrow prepared soil areas for the single or double disc drill shoes to deposit the seed in otherwise untilled soil. Herbicide attachments are available. Modified chisel plows with coulters also used.
Grain Drill (Disk) (105)	Seeder with seed box, metered seed feed through tubes to single or double disc openers. Tubes spaced 7", 9" or 10". May have fertilizer attachment.
Press Drill (106)	Drill with disks or lister bottoms with press wheels to firm soil around seed.

SECTION X - FIELD OPERATIONS

Lister Planter (111)	Planter mechanism either plate type or plateless, air or otherwise actuated. Seed is deposited in furrows made by lister bottoms either hard land or soft land type (may be equipped with fertilizer, insecticide, and/or herbicide attachments).
No-Till, Min-Till Planter (112)	Fluted coulters, rippled coulters and/or subsoil shanks used to open the untilled soil and prepare a narrow 2-4 inch tilled area for the planter units to deposit seeds. Usually used in conjunction with fertilizers, herbicides and insecticides.
Row Crop Planters, All Crops Planter, No Attachments (113 - 114)	Plate or plateless metering devices that drop seed through a boot or shank in a seed furrow or bed opened by a shoe or disc. Seed is covered by a press wheel. Planters may be trail type - wheel carried or tool bar mounted. Two to twenty-four rows.



SECTION X - FIELD OPERATIONS

HARVESTING EQUIPMENT

Combine, All Types (120 - 124 & 127 - 131)	An implement, self-propelled, PTO or mounted motor, that harvests crops either standing or in some cases picked up from windrows or swaths. The crop (grain) is separated from the straw, husks etc., straw, stalks, cobs and husks; cleaned and elevated into a holding tank for delivery into a truck, wagon or grain cart at intervals. Combines may be mounted motor or PTO driven; self-propelled with 2 wheels, 4 wheels or track drive. They can be set up for rice, corn, peanuts, beans, wheat and all small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups. They may be fitted as hillside, sidehill or level land machines. Special corn and other row crop heads are available.
Windrower-Swather (125 - 126)	A machine, either self-propelled or PTO, that cuts the standing hay or ripened grain with a reciprocating sickle aided by a revolving reel of four or more bats or sails. The cut material is deposited on a platform, either draper or auger type. The auger or drapers move the cut material either to the end or the center of the platform where it is discharged into the ground in a "windrow" or "swath". The hay swather may have metal and/or rubber rollers through which the hay passes. This "conditions" or "crimps" the hay to facilitate more rapid and uniform curing.

HARVESTING EQUIPMENT - COTTON

Chopper (stalk cutter) (140)	A machine with a ground driver reel with cutting blades, either angled or spiral, used to chop or cut cotton, corn or other heavy stalks. Also does minor soil preparation.
Module builder (141)	A four-sided form having an openable rear door. It has a traversing, mechanical compacter and compresses seed cotton into high-density stacks.

SECTION X - FIELD OPERATIONS

Cotton Gleaner (Rood) (142, 145)	A cotton harvesting machine, usually ground driven or PTO, pulled by a tractor that gleans or picks up loose picking or stripping or perhaps before harvest began.
Cotton Pickers (143 - 144)	A 2 to 4 implement usually tractor mounted or self-propelled that picks mature cotton from the bolls thru an intricate arrangement of spindles and doffers and deposits and cotton by means of an air stream into the holding basket. When full, the basket is emptied into trailer or cart for delivery to the gin at once or to a module builder. Pickers may make several trips over a field as ripening proceeds.
Cotton Strippers (146 - 148)	Made as self-propelled, PTO, pulled, or tractor mounted machines that pull or strip all of the bolls from the plant at one time over. Stripping is accomplished by rotating brushed and rubber flaps. Strippers may be 2-6 row or a platform type in some instances.
Trailer (149)	Used for transporting seed cotton from picker or stripper to gin.

HARVESTING EQUIPMENT - PEANUTS

Peanut Combine (150)	A peanut harvesting machine that picks up the windrow of peanuts left by the digger-shaker or and separates the peanuts from the vines. The peanuts go into a holding tank. Only PTO models are available. Peanut combines are used only on peanuts.
Peanut Digger-Shaker (151)	A machine, usually 2 or 4 row, that lifts the peanuts, vine and all; by means of long angled knives, from the soil. The soil is shaken from the vines with reel or chain type shakers and vines are deposited in a windrow.

SECTION X - FIELD OPERATIONS

Peanut Digger Shaker-Inverter (152)	Same as digger-shaker except vines in windrow are inverted so the peanuts lay on top of the vines.
Peanut Reshaker-Conditioner (153)	A machine used to fluff-up the windrows to enhance drying or conditioning.
Vine Cutter (154)	A device for cutting peanut vines from roots.
Wagon (155)	A wagon for hauling peanuts; can be used for drying peanuts.

TOBACCO HARVESTING EQUIPMENT

Combine (1 row) (201)	A self-propelled or tractor drawn machine (1 row) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (2 row) (202)	A self-propelled or tractor drawn machine (2 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (4 row) (203)	A self-propelled or tractor drawn machine (4 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Once-over Harvester (204)	An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper or a last-over harvester.

SECTION X - FIELD OPERATIONS

Priming Aid (Looping on sticks) (205)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field take small bunches of tobacco and place the butt ends at both sides of tobacco sticks and then wrap twine around the bunches of tobacco until the sticks are filled.
Priming Aid (Field racking) (206)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in bulk racks used for curing.
Priming Aid (Field box filling) (207)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in big boxes used for curing.
Priming Aid (Other) (208)	Aid of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field or at the barns place tobacco for curing in other than machines 205, 206, and 207 above.
Trailer (Harvest) (209)	A tractor or truck pulled trailer used to carry tobacco from the field to the barn.
Transplanter (210)	A power-down transplanting machine is operated by a driver, and carries 2, 4, or 8 persons on "setters", who ride the machine and alternate in placing or guiding the plants into the mechanism which spaces them at the proper intervals in the row. The machine opens the furrow, dumps a measured quantity of water and draws the soil about the roots of the plants.
Tying Machine (211)	A machine that loops tobacco with an automatic tying or sewing machine. The tobacco leaves and sticks are placed on a moving conveyor belt which passes them under a sewing head. The leaves are attached to the stick by stitches at the butt end.

SECTION X - FIELD OPERATIONS

MOWERS AND BALERS

Amish Harvest (400)	Non-motorized device for harvesting hay.
Bale Wagon (401 - 402)	This tool can be simply a wagon or trailer with a wide flat bed used to haul bales. Likewise, it can be a self-propelled unit that picks up the bales and stacks them on the bed in a manner that allows the baler to be unloaded by power to form a compact stack of bales. PTO units are also available. Same units also are able to pick up the stacked bales for further transport.
Bale Loader (403)	A device, either ground or engine driven that picks up the bales from the ground and deposits the bales onto the trucks or trailer as it moves down the windrow of bales. Largely used for small rectangular bales but models for the large round bales are available.
Balers (404 - 407)	Balers pick the hay or straw up from a windrow and compact it into either round or square bales which may be small (40 - 125 pounds) or large (1000 to 2000 pounds). Balers may be motor mounted, PTO or self-propelled.
Rotary Mower-Cutter, Chopper (408)	A machine similar to a rotary lawn mower used largely to cut weeds and roadsides but may be used to harvest a crop for hay or to shred crop residue. Size range from 4 feet to 20 or more feet of cut when hitched in multiple units. Available in integral, semi-mounted and pull-type. Mostly PTO powered. Cuts by means by a rapidly rotating blade either rigid or flexible.
Mower Conditioner PTO (409)	Consists of a cutterbar, a reel, a pair of full-width conditioning rolls, and a deflector. Width ranges from 7 to 12 feet.

SECTION X - FIELD OPERATIONS

Mower Conditioner (410)	Self-propelled.
Disc Mower (411)	A mower with a number of cutting blades on rotating discs mounted on a bar. The discs are driven from the bottom by a series of flat gears. The entire bar and disks go under the crop as it is cut.
Drum Mower (411)	A series of rotary drums or cylinders with blades attached. The drums are driven by an enclosed gear or chain train from the top. PTO powered.
Flail Mower Shredder (Rotary Chopper) (412)	A machine that mows, cuts or shreds crops by means of steel blades or knives on a horizontal rotating shaft or drum. The high speed of the drum (about 1850-2000 RPM) cause the hinged knives to cut or shred the crop. Can be used to harvest hay or to shred crop residue. Range in size from 5 to 15 feet or more.
Sickle Mower (413)	A machine with a reciprocating cutting sickle that runs in a cutter bar with guards and ledger plates. Mowers may be 3 pt. mounted, semi-mounted, belly mounted or trail type. Usual sizes are 7 to 9 ft. sickle or cutter bars but some heavy cutters are only 5 foot.
Dump-Rake (414)	A series of large "C" shaped teeth attached a bar or frame. This frame can be raised or lowered alternately to pick up the hay and "dump" it into windrowers. Either ground or PTO powered. Sizes range from 8 to 32 or more feet.
Rake Side Delivery (415)	A rake with a four or five bar reel. This is set at an angle to the direction of travel. The reel rotates, either PTO or ground driven, in the opposite direction of the carrier or tractor wheels. This motion along with the angle sweeps the crop into a windrow on the left or the right. Raking swath is 7 to 9 feet.

SECTION X - FIELD OPERATIONS

Wheel-Rake (416)	A series of overlapping wheels, four to five feet in diameter with spring teeth on the rim of the wheels. The wheels are mounted on a bar or frame at 10 to 60 degree angle to the direction of travel. The wheels are turned by contact with the crop and the ground. The 5 wheel rake covers about 16 3/4 feet and the 7 wheel about 20 feet.
Stacker Mover (417)	A forklift-like device for moving hay stacks.
Stacker Automatic (418)	A device for compacting hay.

LAND FORMING OR SHAPING EQUIPMENT

Backhoe (500)	Large shovel or scoop operated with a mechanical arm. Often used for ditch digging.
Corrugator (501)	A device of various configurations that produces vee shaped indentions in the soil to aid in the distribution of irrigation water. The units may be mounted on a row cultivator for row crop or on a tool-bar for seeded crops.
Disk Border Maker (502)	Set of two single discs or two sets of 3 or more discs used to make borders for irrigation. Can be reversed to tear down borders. Usually mounted on a tool bar.
Ditch Closer (503)	A machine usually mounted on a 3-point hitch or on wheels pulled behind a tractor that pulls dirt together to fill in an irrigation or drainage ditch.
Ditcher (Vee Rotary) (504)	A machine either with a vee shaped blade or a rotary auger or fan that is used to cut field irrigation or drainage ditches. Either 3-point or trail mounted.

SECTION X - FIELD OPERATIONS

Float (505)	A device, usually homemade, that is used for minor rough levelling. Soil moving bars or blades may be made of wood or metal.
Land Plane-Leveler (506)	A machine used primarily to level land for irrigation or to improve drainage. This machine usually has two or more sets of wheels on a long wheelbase supporting one or more bowls, blades or baskets that are intended to carry soil from high points to low areas in a field. Some systems are controlled by a laser beam for precise levelling.
Levee-Plow-Disk (507)	A machine used to throw up levees or ridges between rice fields. Most machines have two sets of discs, each with one to three disc blades that throw the soil up into a levee. Most levee discs are toolbar mounted. The disc sets can be reversed to tear down the levees.
Rear Mounted (508)	A curved blade, 5 to 8 feet long and 15 to 24 inches deep, attached to the 3-point hitch of a tractor. Most can be angled sideways and up and down from ground level either manually or hydraulically. Used for ditching, back filling, scraping and rough levelling.

OTHER IMPLEMENTS

Chaff/Straw Saver (600)	An Attachment pulled behind a combine that bunches or stacks the chaff and/or straw as it comes from the combine. The small hay (straw) stocks are left in the field for later retrieval. The chaff or straw is used as feed or bedding.
Electric-Discharge Weed Killer (601)	A machine that has a PTO powered generator to produce an electric charge that uses the weed plant to complete an electrical circuit to the ground. The current causes the plant cells to rupture, killing the plant. Weeds must be taller than the plants in order for the method to be feasible. Utilizes a 50 KW generator powered by a 1000 RPM-PTO on a minimum 120 HP tractor.

SECTION X - FIELD OPERATIONS

Hay Wagon (602)	Flat bed wagon used to haul hay.
Off-field Thresher (603)	Stationary threshing machine.
Rock Picker (604)	A heavy duty machine with pick-up teeth or heavy duty rotating reels that deposits rocks and stones from "1" diameter to 500 pound boulders in a tank or bucket for removal from the field. Some rock pickers or harvesters are equipped with elevators that deposit the rocks directly into a truck or trailer.
Rock Windrower (605)	A heavy side-delivery or wheel type rake that moves the stones into windrows in order to speed up the process of rock picking.
Rodent (Gopher) Killer (606)	A machine with a sub-soil shank that allows poisoned bait to be injected into the soil at the same depth as the gopher burrows or runways. Fields are usually treated in a criss-cross pattern to get better coverage.
Rubber-Wheeled Weed Puller (607)	A series of paired rubber tired wheels set touching one another and rotating in opposite directions. As the machine moves forward at a level above the crop but below the weed tops, the weeds are caught by the spinning wheels and are pulled out.
Flail (608)	Same as flail mower. See 412.
Rotary (609)	Same as a rotary mower. See 408.

SECTION X - FIELD OPERATIONS

Silage Harvester (610)	Similar to forage harvester for chopping fodder.
Stalk Shredder (611)	A rotobeater with hard metal rods or cutting blades attached to a revolving horizontal shaft.
Tractor or Truck-no Attachments (612)	Self explanatory.

Y CUSTOM and TECHNICAL SERVICES — CORN Y

1. Was any agricultural **service or custom work** done on this operation for a fee or on a contract basis for the corn? *[To be considered custom work, both machinery and labor must be provided.]*

☑ YES ☐ NO - *[go to 3]*

2. I shall read several types of custom operations, please tell me if it was used or not and if so, what it cost.

(1)		(2) Total cost — $ — OR	(3) Cost per unit dol/cents and	(4) Total units
2a. land leveling? ☑ NO ☐ YES —►	519		_•__	____
2b. plowing? ☐ NO ☑ YES —►	520	3,000	_•__	____
2c. planting? ☑ NO ☐ YES —►	521		_•__	____
2d. cultivating? ☑ NO ☐ YES —►	522		_•__	____
2e. harvesting and hauling? ☑ NO ☐ YES —►	523		_•__	____
2f. harvesting only? ☐ NO ☑ YES —►	524	1,000	_•__	____
2g. hauling only? ☑ NO ☐ YES —►	525		_•__	____
2h. stalk shredding? ☑ NO ☐ YES —►	937		_•__	____
2i. drying? ☑ NO ☐ YES —►	936		_•__	____

3. Were any technical services, such as soil testing or scouting, performed on the corn for a fee?

☐ YES - 3a. What was the total cost?.....dollars 526

NO OR cost/unit dollars & cents _•__

and total units

SECTION Y - CUSTOM WORK

Purpose To obtain data for certain custom operations performed on the operation's 1987 corn.

Definition Custom work is the hiring of a machine service which provides both the machinery required and the labor necessary to complete the operation. Frequently, a respondent may rent a machine and operate it himself. This is not a custom service but rather normal machinery rental. Machinery rental operations should be reported in Section X, Field Operations.

Item 1 Check the appropriate box indicating if the operator hired any custom work done on the 1987 corn. Exclude any custom fertilizer or chemical application charges recorded earlier in the questionnaire. Exclude "swap" labor.

Complete the item 2 if "Yes" is checked.

Item 2 This item is the <u>total cost</u> of a custom operation that will be used in tabulations. This can be obtained by either of two ways. First, if the operator knows the total cost for a particular custom operation, enter this figure in column 2 and go to the next preprinted operation. <u>This is all of the information that is needed.</u>

If the operator does not know the total cost, then the second method is to obtain the cost per unit (acre, hour, ton, etc.) for the custom operation (enter in column 3) and then get the total number of units payment was made on and record in column 4. The total cost can then be computed in the clerical edit.

Column 1 Custom operations are prelisted. If an operation is reported that is not prelisted, make notes explaining the operation. When recording any data associated with custom harvesting, determine if other operations were included. Check a NO or YES after asking about the pre-listed operation.

SECTION Y - CUSTOM WORK

Column 2 — Enter the total cost associated with each operation. **If this column is completed, skip columns 3 and 4.**

Column 3 — Record the cost per unit associated with each operation. Entries are to be in dollars and cents. **If there is an entry in column 3 there must also be an entry in column 4.**

Column 4 — Enter the corresponding total units for which there was payment. For computing the total cost, it is irrelevant what these units are.

Z DRYING — CORN Z

1. Did this operation **own** any corn drying facilities at any time during 1987?

☐ YES ☐ NO - *[go to 4]*

1a. What type of on-farm drying was used for—

Batch	= 1
Bin	= 2
Continuous flow	= 3
Other	= 4

(1) HIGH temperature drying?.....code [946]

(2) LOW temperature drying? .....code [945]

(3) Aeration only? .....code [944]

2. What was the rated capacity of the high temperature drying systems (in bushels per hour) to remove 5 points of moisture? .....bushels/hour [943]

3. What type of fuel was used as the primary heat source for—

3a. the HIGH temperature system? .....code [942]

3b. the LOW temperature system?.....code [941]

4. *[if Item 2i page 33 positive]* What percent of the 1987 corn was **CUSTOM DRIED?**.....percent [940]

SECTION Z - DRYING CORN

General — In this section we are interested in a complete inventory of drying equipment at any time in 1987.

Item 1 — Check the appropriate answer to whether this operation owned any corn drying facilities.

Item 1a — Enter the code for the type of dryer system used for each type of drying. A particular farm may use all three drying systems.

HIGH temperature drying involves removing moisture from grain by moving air heated to about 180 F degrees through the corn. The last couple of points of moisture are usually removed by aeration with natural air.

LOW temperature drying removes moisture by moving air heated to about 120 F degrees through the corn. Again, aeration may be used to finish removing the last couple of points of moisture.

When the moisture content is relatively low at the time of harvest, the corn may be placed directly in storage and aerated with unheated air.

Item 2 — Enter the capacity in bushels per hour for the high temperature system only. Most temperature systems will dry about 300 to 400 bushels per hour. Drying capacity per day will often equal combine harvesting capacity for one day.

Item 3 — Enter the code for the type of fuel used as the heat source for high temperature and low temperature drying. Enter codes in both cells if these systems were identified as being used in Item 1.

SECTION Z - DRYING CORN

Codes to use are:

Electricity	= 1	Natural Gas	= 6
Gasoline	= 2	Solar	= 7
Diesel	= 3	(Natural) Air	= 8
LP Gas	= 5	Other	= 9

Item 4 — If any corn was reported custom dried in Section Y, Item 2i, ask the operator what percent of the 1987 corn production it represented.

AA IRRIGATION — CORN AA

1. *[If corn was not irrigated—see Q—go to BB.]*

I will now mention several sources of irrigation water. Please tell me the number of acres of corn irrigated from each source and the total number of other crop acres, if any.

	(1) Source	(2) [check] None	(3) Corn - acres -	(4) [check] None	(5) Crops OTHER than corn - acres -
1a.	wells	☐	747 100	☐	748 50
1b.	purchased water	☑	749	☑	750
1c.	surface sources (rivers, lake, ponds) which were—				
	(1) free flowing	☑	751	☑	752
	(2) pumped by your own pumps	☑	753	☑	754
	(3) pumped by private association pumps (and no charge for water)	☑	755	☑	756
1d.	OTHER sources (such as return water or waste water)	☑	757	☑	758
	[Add 1a + 1b + 1c + 1d. Enter below.]				
1e.	TOTAL	☐	759 100	☐	760 50

CHAPTER 7 - CORN

SECTION AA - IRRIGATION

Purpose

The purpose of this section is to obtain a description of the irrigation equipment and irrigation practices used by this operation in the production of its corn. Information obtained will be used to estimate irrigation costs.

Irrigation

Information recorded here explains where and how water is obtained, what equipment is used in obtaining the water and conveying it to the fields, and what equipment is used to apply the water to corn.

Include all applications of water that were made to benefit the 1987 corn crop including those which may had been made in the fall of 1986.

Definitions

Surface Water

Water stored in impounded or dug pounds, lakes, or flowing in streams and rivers.

Ground Water

Water from wells.

Pumping Lift

The vertical distance from the water level during pumping to the outlet at the surface of the ground. It is the static water level plus draw-down.

Drilled Depth

The vertical distance from the surface of the ground to the bottom of the drilled hole.

Acre-Inch

A quantity of water sufficient to cover one acre of land one inch deep.

SECTION AA - IRRIGATION

Head Ditches

The main ditch at the top of each field or basin from which water is drawn for application to the field.

Item 1 Source of Water

Consider only water sources used to irrigate acreage on which corn was produced in 1987. Do not list sources if the corn was not irrigated by that source. For example, in 1987 a producer purchased water from an irrigation district and on an adjoining acreage pumps from his own wells. He produced 200 acres of oats on the land for which he purchased water. He produced 300 acres of corn and 200 acres of barley on the land irrigated by his own pumps. Do not record "purchased water" as a source of water for any acreage since the source was used entirely for his oat crop. Do record 300 corn acres irrigated and 200 other acres irrigated by "wells".

Record the number of corn acres irrigated with water obtained from each source listed. Record the number of acres of corn irrigated by each source and the number of all other crops irrigated by each source from which corn was also irrigated.

If the respondent's only source of irrigation water is wells (groundwater), record the total number of corn acres and the total number of other irrigated acres in cells 747 and 748. If the respondent obtained all irrigation water from an irrigation company or district, record the acres of corn in cell 749. **In this situation, the operator or land owner must pay annual fees or charges for each irrigation and sometimes may pay both.** If the respondent obtained irrigation water from more than one source, record the acreage of corn irrigated from each source.

SECTION AA - IRRIGATION

Often, a producer near an area served by an irrigation district may be charged a fee by the irrigation district even though he does not receive any water from that district. This fee reflects the value of the ground-water recharge resulting from the use of irrigation district water in the area. In this situation, do not record any acres as irrigated with purchased water.

If the respondent obtained water to irrigate corn from surface sources (rivers, lakes, ponds, etc.), record the acres irrigated in cells 751, 753, or 755. Record acres irrigated with free flowing water in cell 751. Record acres irrigated with water pumped by the operator's pump in cell 753. Include in cell 755 acres irrigated using water pumped by privately owned pumping companies or associations where there is no cost for the water itself. Such an arrangement is commonly found along the Snake River in Idaho.

In some areas, water may be obtained from more than one source and conveyed to the same fields. In this case obtain the respondent's best estimate of the proportion of water obtained from each source and divide by acres so that the total in cell 759 equals the total acres of the irrigated corn.

Water provided by an irrigation district should be considered "purchased water" regardless of the source to the irrigation district. The irrigation district may obtain all of its water by pumping from deep wells or via canal from a lake, reservoir, or stream. All acreages irrigated with water provided by the irrigation district or canal company should be listed in item 1b.

SECTION AA - IRRIGATION

In some cases, farmers may have formed an association to provide water. These associations may maintain pumps and ditches and charge the individual farmer for his share of these costs. If the association does not charge the producer for water, but only for the cost of delivery, then report acres irrigated in item 1c(3) "pumped by private association pumps".

Do not record any association (in item 1c3) receiving water from Bureau of Reclamation, Army Corps of Engineers, or State Water Projects, even though some associations (and irrigation districts) may have negotiated for free water from these sources.

Item 2 Well Water

Consider only the wells used to irrigate the 1987 corn. They need not be used exclusively for the corn but, must have been used at least partially to irrigate the acreage. For our example, the farmer has 5 wells. Two of these wells provided water exclusively for corn in 1987. One well was used for irrigating both corn and barley and two wells provided water exclusively for barley. Record "3" wells in cell 761.

For the wells used to irrigate corn, record the average depth, average pumping lift, and average well casing diameter. The average depth refers to the average drilled depth, as defined earlier. The average pumping lift was also defined earlier. The depth and lift will depend on the water table level and the amount of drawdown on that water table during pumping. The average well casing will probably range from 12 to 36 inches, with 20 inch casings being relatively standard throughout much of the West.

Question 2e attempts to survey the prevalence of ground water pumping restrictions. If these restrictions are in effect, check YES, and ask the respondent if he or she would have pumped more water if the restriction had not prevented it.

SECTION AA - IRRIGATION

Item 3 — Purchased Water

If the producer reported purchased water applied to the corn (cell 749), report the source and cost of that water here. Include the cost for water applied to all crop acres.

Circle the principal source of that purchased water. Some producers may belong to irrigation districts which receive water from Bureau of Reclamation projects, Corps of Engineer projects, state water projects, and the district's own wells. Obtain the producers estimate of the source that provided the largest quantity of water to his irrigation district in 1987. The price charged by such multi-source irrigation districts will be a weighted average of the costs of obtaining water from each source.

Item 3a — Report the cost of purchased water, either as a total cost, or the cost per acre, if the charge is assessed this way. Report the cost of water applied to the total irrigated acreage. If the irrigation district charges per acre-foot delivered, compute the total costs.

Item 4 — Surface Sources

Enter the average <u>vertical</u> lift from the water source to the corn fields. This is not the distance from the water source but rather the change in elevation between the water source and the fields.

AA irrigation — corn — continued AA

2. *[If no corn was irrigated from WELLS, IC 747 zero, go to 3]*

2a. How many wells were used to irrigate the corn? 761 3

2b. What was the (average) depth? 762 325

2c. the (average) pumping lift? 763 110

2d. the (average) well casing diameter? 764 20

2e. Do laws and regulations impose restrictions on the amount of ground water this operation is allowed to pump?

☐ YES ☐ NO - *[go to 3]* 765

(1) Would this operation have pumped more groundwater if legal restrictions had not prevented it?

☐ YES ☐ NO 766

3. *[If no corn was irrigated with PURCHASED WATER, IC 749 zero, go to 4.]*

Where did the purchased water come from? *[circle code]* 767

Bureau of Reclamation 1
Army Corps of Engineers 2
State Project 3
Private Project 4
Some other source 5
[Specify] _____

3a. What was its total cost? ..... dollars 768

OR

What was the cost per acre? ..... dollars 769

4. *[If no corn was irrigated from SURFACE SOURCES, IC 753 zero, go to 5.]*

4a. If the water had to be pumped, what was the average vertical lift to the corn irrigation area? ..... ft 772

SECTION AA - IRRIGATION

Item 5 Surface Sources with Private Association Pumping

Obtain data on the pumping costs of surface water provided by a private pumping association where there is no cost for the water itself. (If cell 755 is zero skip to item 6). The cost reported here will include primarily power costs but may also include costs for repair and maintenance of the pumps and pump ownership costs. Record either the total cost for this crop (cell 837) or cost per acre (cell 838).

Item 6 Irrigation Pump Power Units

Here we want to obtain descriptions of the power units used to perform all of the pumping of irrigation water for corn. If no pumps were used to deliver water to the fields or to apply it, skip to item 7.

Include in this section all power units used in 1987 for irrigation of the corn. Include power units used with tailwater or wastewater pits or pump-back systems.

In areas where water is applied with sprinklers, it is common to have two pumps in operation: one pump to pump water from the well, and a booster pump to pressurize the water through the sprinkler system. Record each of these separately.

<u>Do not include</u> information in this section about power units owned and operated by an irrigation company or district even if the respondent is part owner of the irrigation company.

AA irrigation — corn — continued AA

5. *[If no corn was irrigated from PRIVATE ASSOCIATION PUMPS, IC 755 zero, go to 6.]*

— $ —

What was the total pumping and overhead cost of private assocation water for this corn crop? 837

OR

What was the pumping and overhead cost per acre for the corn? .....dollars & cents 838 __•__

6. What pumps were used?
[Exclude all public and private project pumps.]
[If none, go to Item 7.]

(1) *[water source or pump utilization]*	(2) What was it powered by? *[enter code]*	(3) How many of these were used?	(4) WHAT WAS THEIR (AVERAGE)— Size?	(5) Pumping rate per unit in GPM?	(6) Hours of use per unit for ALL crops?
Booster Pump 1/	773 1	774 3	775 200	776 1400	777 3000
Wells	778 1	779 3	780 600	781 1500	782 3000
	783	784	785	786	787

1/ [Pumps that are used solely to provide pressure in the pipeline.]

Column (1)	Column (2)	Column (4)
Water Sources or Pump Utilization Types	Possible fuel/ power types	Size
Wells	Electric	Horsepower
Rivers, lakes, ponds	Gasoline	Cubic Inches
Tailwater, wastewater pits	Diesel	Cubic Inches
Holding ponds	LP Gas	Cubic Inches
Irrigation above ditch or canal	Natural Gas	Cubic Inches
	Tractor *[code = 9]*	Horsepower

SECTION AA - IRRIGATION

Column 1 — Enter a narrative description of the water source/pump utilization listed at the bottom of the table.

Column 2 — Enter the code of the fuel or power type that applies to the power unit(s) listed on each line. Codes to use are:

Electricity	= 1	LP Gas	= 5
Gasoline	= 2	Natural Gas	= 6
Diesel	= 3	Tractor	= 9

Column 3 — Enter the number of units of that particular size and power type. In our example, the producer has 3 wells that are pumped by 600 horsepower electric motors. Each well also uses a 200 horsepower electric motor to pressurize the water for sprinkler application.

The operation may also pressurize water from an irrigation company for application by sprinkler.

Column 4 — Record the average size of the unit.

Column 5 — Enter the average pumping rate in gallons per minute (GPM) for the pump(s) listed on each line. Pumping rates should be those found during normal operation.

The booster pump should pump at the same rate as the well pump. If the well water is pumped into a canal or other storage facility, and then applied with a pump, do not consider this a booster pump, but code the water source appropriately.

AA irrigation — corn — continued AA

7. What irrigation system(s) was used to apply the water to the corn? *[check system in col. (1) and fill in cols. (2)-(6)]*

(1) System	(2) How many acres of corn were irrigated?	(3) How many times was it irrigated?	(4) What were the average inches of water applied each time?	(5) How many acres of ALL crops were irrigated?	(6) How many systems were there?
☐ hand moved	788	789	790		
☐ solid set/season	791	792	793		
☐ side roll (wheel line)	794	795	796		
☐ center pivot ☐ low pressure	797	798	799	800	801
☐ high pressure	802	803	804	805	806
☐ big gun (cable tow)	807	808	809	810	811
☐ gated-pipe	812	813			
☐ siphon tubes	814 *	815			
☐ flood	816 *	817			
☐ OTHER	818 *	819			

7a. Any other systems? *[enter above]*

7b. *[Add Column (2) and enter total below in 7c.]*

7c. TOTAL... 820

[Does acreage in 7c check with total irrigated acres of corn in Q? ☐ YES - go to 7e. ☐ NO - recheck totals. If discrepancy remains, ask.]

7d. Were any of these acres irrigated with two or more application systems?

☐ YES ☐ NO 821

SECTION AA - IRRIGATION

Column 6

Report the average hours used by each power unit. In our example, the respondent estimates that his wells and booster each run 1000 hours per year. He informs us that the pumps pressurizing the irrigation company water run 24 hours for the 4 1/2 months that water is delivered. Irrigation pipe is moved so that the pumps irrigate a fairly large acreage. Of the 135 days that he irrigates (4 1/2 months X 30 days per month) he estimates that the pumps average being down 10 days each for repairs, and time lost when sections of pipe are moved. We estimate that the pumps average 3000 hours each (125 days X 24 hours per day).

Item 7

For this item, record information which describes the equipment and practices used to apply water to corn.

Descriptions

Sprinklers:

Hand-Move Sprinkler System: Portable aluminum pipe system which must be moved one or more times per day to meet crop irrigation requirement. May use a variety of different sprinkler sizes. Adapted to most soil types, topography, field size, and shape.

Solid-Set Sprinkler System: Portable aluminum pipe system which is placed in the field(s) at the start of the irrigation season and left in place throughout the season. May use a variety of sprinkler sizes, but normally designed for small sprinklers and low application rate. Adapted to most soil types, topography, field size and shape.

Permanent Sprinkler System: Buried pipe system with only the risers and sprinklers above ground. This system has the same characteristics as the solid-set sprinkler system, except that the labor requirements will be lower. Code as solid-set sprinkler.

SECTION AA - IRRIGATION

Self-Propelled Side-Roll Wheel Move: Self-propelled continuous move side-roll system on towers spaced 80 feet apart designed to be used on square field 1320 feet by 1320 feet and on crops up to 9 feet in height. Water is supplied to unit by flexible rubber hose. Restricted to reasonably flat terrain. Unit can be end-towed from one field to another. This system may also be referred to as a Linear Move System.

Side-Roll Wheel Move: Wheel-move lateral line, designed to be used on rectangular or square fields up to 2000 feet in length and on low growing crops 4 feet or less in height. Unit is moved by a small gasoline engine. Wheel are spaced 40 feet apart. Designed to irrigate a strip 60 feet wide at one setting. Restricted in use to reasonably flat terrain. Unit must be disassembled to move from one field to another. Best suited to fields of at least 20 acres in size and 1000 to 1500 feet long.

Side-Roll Wheel Move With Tow Lines: Wheel move lateral line with tow lines trailing behind the main lateral line, with one to three sprinkles per tow line. Unit is moved by small gasoline engine. Wheels are spaced 40 feet apart. Designed to be used on rectangular or square fields of 40 acres or more in size and up to 1320 feet in length and for crops up to 9 feet in height. A strip up to 180 feet wide can be irrigated at one field to another. Restricted to reasonably flat terrain.

End-Tow: Aluminum pipe sprinkler lateral mounted on dolly wheels or skids spaced 20 to 40 feet apart. Unit is end-towed through the field from one position to another by a tractor. Designed to be used on pasture and hay crops, but can be used on some row crops and tree fields. Designed to be used on rectangular or square fields up to 2000 feet in length with alley through the center of the field. Best suited to flat to slightly rolling topography. Strip up to 80 feet wide can be irrigated at one setting. Enter as a side-roll.

SECTION AA- IRRIGATION

Carousel Sprinkler-Traveler: A system with a rotating boom that sprinkles or sprays water as it propelled forward across a field. Water supply is either hose or supply ditch. Most systems are self-propelled with a mounted gas or diesel engine. Enter as a side-roll.

Center-Pivot System: Self-propelled, electronic or hydraulic continuous move sprinkler or spray nozzle system which travels around a center pivot point on towers spaced 80-100 feet apart. Pattern irrigated is essentially a circle; however, some system have features that provide for coverage of much of the four corners. Best suited to square fields of 40 acres or more in size, slope of less than 10% and high infiltration rate soils. Can be used on fields up to 240 acres in size. Unit can be end towed from one field to another, but normally limited to use on three adjacent fields. Low pressure is less than 45 PSI.

Self-Propelled Gun Traveler; Self-propelled by separate engine, or hydraulic continuous move, single large gun mounted on a four wheel trailer. Water is supplied through a flexible rubber hose. Best suited to rectangular or square fields 800 to 1500 feet in length, but can be used on odd-shaped fields. Designed for use on straight rows, flat to slightly rolling topography and medium to high infiltration rate soils. Enter as a big gun.

Reel Type-Hose Pull: Uses a non-collapsible (hard) hose on a reel. The gun type sprinkler attaches to the hose and is stationed at one end of the field and the hose reel at the other. As the water passes through the hose it activates a turbine drive system that rolls the hose onto the reel and pulls the sprinkler gun and carriage across the field - ready for the next move. Enter as a big gun.

SECTION AA - IRRIGATION

Reel Type-Cable Pull: Similar to hose pull systems except the sprinkler gun and carriage is pulled by a cable as the hose is dragged in a loop across the field. These systems often require a grassed strip to operate on. Enter as a big gun.

Gravity Irrigation System

Gated Pipe: A pipe, usually plastic (PVC) or aluminum, that is fitted with spaced closeable gates or holes that permit the water to flow into furrows or basins. For flood irrigation the regulating gates are usually controlled manually but can be automated. This system usually requires some powered pumping system but can flow with gravity from a reservoir or diversion dam.

Siphon Tubes: Short tube usually made of aluminum or plastic that are used to "siphon" water from a ditch into a furrow or field. Tubes are three to five feet in length, are curved and range in size from about one inch to three inches in diameter.

Graded-Furrow: Application of water in small channels having continuous slope in direction of water movement to irrigate row crops. Best suited to sites where furrow grade does not exceed 1%. Fields must be well graded and tail water facilities should be installed. Not designed to apply light application of irrigation. Water is applied to furrows by gated pipe or from ditches by siphon tubes. Enter according to how water is applied.

Contour-Furrow: Similar to graded furrow, but furrows are laid on the contour to reduce slope. Can be used on all soils except light sandy soils and soils that crack. Enter according to how water is applied.

SECTION AA - IRRIGATION

Contour-Ditch: Form of controlled surface flooding. Water is distributed from ditches that run along the contour. Water is discharged through openings in ditch bank, by siphon tubes or over uniformly graded lower lip of ditch. Water flows in unconfined sheet down slope from one contour ditch to the next and is collected in next ditch for reuse. Suited to noncultivated crops such as legumes, grasses, and small grains. Enter according to the application system used.

Contour-Levee: The areas bounded by small contour levees and cross levees are completely flooded. Application rate is considerably larger than intake rate. Water remains on soil until irrigation needs are met and excess is then drained away.

Adapted to crops that can tolerate flooding for up to 12 hours such as rice, cotton, corn, soybeans, small grains, and grasses. Land forming is required and adequate surface drainage is an essential part of the system. Irrigation water must be of good to excellent quality. Enter as flood application.

Corrugation: Partial surface flooding method. Water is applied in small channels or corrugations evenly spaced across the field. Initial streams are greater than intake rate of soil, but must be cut back when water reaches lower unit to prevent runoff or tail water recovery systems must be installed. Best suited to close growing, non-cultivated crops such as legumes, grasses, and small grains. Enter as flood application.

Graded-Border: Type of controlled surface flooding. Field is divided into strips by parallel dikes. Stripes should have little cross-slope. Best suited to soils with moderately low to moderately high intake rates. Used to irrigate legumes, grasses, small grains, orchards and vineyards. Enter as flood application.

SECTION AA - IRRIGATION

Level-Border (Basin): Rapid application of water to level or nearly level area enclosed by dikes to retain water at uniform depth until it infiltrates the soil. Best suited to soils with moderate to slow intake rate and a moderate to high available water holding capacity. Can be used to irrigate a number of crops without changing the basic layout or rate of application. Accurate land leveling is required. No irrigation water is lost by runoff. Enter as flood application.

Level-Furrow: This method of irrigation uses small channels without grade and is used to irrigate crops planted in or between the furrows. A large stream of water is required and water remains at a uniform depth throughout the furrow until it infiltrates the soil. Best suited to soils having moderate to slow infiltration rate and moderate to high available moisture holding capacity. Best suited to row crops, but can be used for grass crops. Enter as flood application.

Sub-Irrigated: Maintenance of a water table at some predetermined depth below the surface through the use of ditches, sub-surface drainage tubing or mole drains and water control structures. Conditions for use of this system are limited. These conditions include flat topography, an impermeable layer or permanent water table at a shallow depth of 4 to 8 feet and a permeable sand layer where the ditch or tile is installed and a fairly permeable soil profile not less than 24 inches deep. The sub-irrigation system also serves as a drainage system. A good water supply is needed to rapidly supply irrigation water needs. Enter as other.

AA irrigation — corn — continued AA

7e. *[If SIPHON TUBES or FLOOD was used (see previous page), ask]*

What percent of the ditching was—

(1) cement lined?	822 %
(2) dirt lined?	823 %
(3) *[If dirt lined]* How many times were head ditches put in during 1987?	824
(4) How many fields of corn were irrigated using siphon tubes or flood irrigation?	825

8. What was the most **common** method used to schedule the time and amount of water applied? *[circle code]*

visual observation of the crop and/or soil	(1)
use of a calendar schedule	2
media information on crop water needs	3
water delivered by irrigation organization with no scheduling choice	4
use of soil moisture sensing instruments such as tensiometers or blocks	5
commercial scheduling service	6

826

9. I will read several water-saving management techniques, please tell me if this operation practiced any of them. *[circle code]*

	YES	NO	
9a. tailwater pits and reuse systems	(1)	2	827
9b. wide-spaced bed furrow systems (widths greater than 45 inches)	1	(2)	828
9c. compacted furrow beds	(1)	2	829
9d. furrow diking	(1)	2	830
9e. short-set irrigation [stopping irrigation prior to water reaching the end of the field]	1	(2)	831
9f. limited irrigation [applying water at a rate less than that which would maximize yield]	1	(2)	832
9g. elimination of pre-plant irrigation applications	1	(2)	833
9h. laser-leveling techniques to adapt field slope	1	(2)	834
9i. surge-flow application	1	(2)	835
9j. cablegation water application management system	1	(2)	836

SECTION AA - IRRIGATION

Drip or Trickle: Maintenance of an adequate portion of the root zone of the plant at, or close to, full soil moisture capacity during the growing or productive cycle of the plant's life. Water is supplied through emitters attached to a supply pipe or porous tubing at a rate of 3 to 15 gallons per minute (gpm) per acre depending upon the crop and the application method. System is designed to be operated daily or at rather frequent intervals. Designed to be used on all soil types, except extremely high infiltration rate soils, on rolling to flat topography, primarily on tree, vine, nursery and greenhouse crops and high cash value row crops. Enter as other.

Item 7 (Continued)

Column 2 — Enter the corn acreage that is irrigated by each type of application system. If more than one application system is used on the same acres of the corn, enter the total acres under each system.

Column 3 — Record the number of times water was applied to corn with each application system.

Column 4 — Enter the average quantity of water applied per application by each application system. Water quantities must be recorded in acre inches.

Columns 5 and 6 — For the center pivot and big gun applications systems, record the total acreage of all crops irrigated during one season in column 5 and record the number of center pivot or big gun systems used to irrigate these acres in column 6.

If any of the acres of corn were irrigated with two systems (on same acres) the total acres recorded in cell 820 will exceed 759. If this is the case, complete item 7d indicating that the same acres were irrigated with two systems.

SECTION AA - IRRIGATION

Item 7d — In item 7C check enter YES if the total acres irrigated of the corn exceeds the planted acreage of the corn. This should only occur when some of corn acres were irrigated with more than one application system.

Item 7e — If siphon tubes or flood systems were indicated, enter the percent of each type of ditch used in item 7e (cells 822 and 823). Record in cell 824 the number of times head ditches were plowed in if dirt lined ditches were used. In cell 825, record the number of fields of corn irrigated by siphon tubes or flood application methods.

Item 8 — Scheduling Irrigation

Irrigation technology has changed drastically in recent years as costs have risen and water availability has declined. To better understand the respondent's decision making factors, item 8 has been added. Most farmers still use sight and touch to determine the fields' water needs, but others have turned to professional scheduling or to sensing instruments. Circle the most common method from those listed.

Item 9 — Water saving techniques

Along with more precise scheduling, many farmers have adopted one or more water saving techniques to more efficiently use their irrigation water. These can range from eliminating certain applications or changing field layout to reuse systems. Circle each listed method that the respondent practices.

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CHAPTER 8
PEANUTS
1987 FARM COSTS AND RETURNS SURVEY

Q ACREAGE and SEEDING — PEANUTS Q

1. *[If no peanuts planted—see B—go to BB]*
Now I need more information about the peanuts planted on this operation in 1987.

2. How many acres of peanuts were planted on (irrigated, non-irrigated) land that this operation—

— acres planted —

	Irrigated	Non-Irr.	Total
2a. owned?	384	385	386
2b. rented on a cash basis?	387	388	389
2c. rented on a share basis?	390	391	392
2d. used rent free?	393	394	395

[Enter totals below and in right-hand column]

2e. TOTALS	396	397	398

3. What was the (average) seeding rate per acre (one time over)? .....pounds/acre — 399

4. What was the average row width? .....inches — 913

5. How many acres of peanuts had a cover crop in the fall of 1986? .....acres — 912

6. Was any peanut hay harvested in 1987?

☐ YES ☐ NO - *[go to 7]*

6a. How many acres were harvested? .....acres	400
6b. How many tons were produced? .....tons	401
6c. What was the value per ton of the hay at harvest? ..dollars/tons	402

SECTION Q - ACREAGE AND SEEDING - PEANUTS

Purpose — To determine the tenure of the operator's 1987 peanut acreage, the seeding rate and if any peanut hay was harvested.

General — The total acres includes all owned, rented, and rent free land for which the operator makes the day-to-day management decisions. The total acres may be contiguous or non-contiguous. If the operation is non-contiguous, the operator must make the day-to-day decisions for each parcel of land in the non-contiguous operation.

Definitions for items 2a through 2e are the same for all peanuts.

Item 1 — The enumerator note instructs you to go to Section BB, page 41, if no peanuts were planted. You may need to refer to Section B, page 5, to see if any peanuts were reported.

Item 2a — Include land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustees of a divided estate.

Item 2b - 2d — Include all land rented from others (private individuals, Federal, State, railroad, etc.) for which the operator used the land rent free, paid cash rent on a per acre basis, or paid for the land with a share of the peanuts (either standing or harvested). Record the acres of peanuts that were irrigated or non-irrigated by land tenure. The sum of the reported irrigated and non-irrigated acres should equal the total acres of peanuts planted on this operation in 1987. Data from item 2 will be used primarily to determine a land charge for the peanuts.

Item 3 — Record the average seeding rate per acre in either pounds per acre.

SECTION Q - ACREAGE AND SEEDING - PEANUTS

Item 4 — Record the average row width used for planting the peanuts. Some farmers are using a "modified planting pattern, such as planting 2 rows then a space, then another 2 rows and a space, etc. (a similar layout to skip row cotton although for a different reason). In this case ask the distance between row centers and divide by the number of planted rows. This information is used with machinery information to determine field time and machinery requirements.

Item 5 — Record the acres of land planted to peanuts in 1987 that were planted to a cover crop in the fall of 1986.

Item 6 — Determine if peanut hay was harvested in 1987.

Item 6a — Record the acres of peanut hay that were harvested in 1987.

Item 6b — Record the <u>total</u> tons of peanut hay harvested in 1987.

Item 6c — Record the estimated per-ton value of the 1987 peanut hay (to the nearest dollar).

Q acreage and seeding — peanuts — continued Q

7. We need information on peanut quota.
Did *[operation as listed on the label]* have a farm poundage quota in 1987?

☐ YES ☐ NO - *[go to R]*

7a. How many pounds did this operation—

	— pounds —	— cents/lb. —
(1) own?	911	
(2) rent for cash?	910	946 __ __ • __

8. *[If 7a(2) positive, ask]*

How many cents per pound was paid for the quota on cash rented land?

SECTION Q - ACREAGE AND SEEDING

Items 7 and 8	Determine if the operation had a peanut quota in 1987.
Purpose	These questions will determine the pounds of peanut quota the operation has and the cost for any quota rented in. Peanut growers can grow peanuts without a poundage quota, but the price received for peanuts marketed with a quota will be considerably higher than those marketed without a quota. Poundage quotas may be owned by the operation or rented from others.
Item 7a(1)	Record the pounds of quota the operation <u>owned</u> in 1987.
Item 7a(2)	Record the pounds of quota the operation <u>rented for cash</u> in 1987.
Item 8	If the operation rented quota for cash, record the rental rate in <u>cents</u> (to the nearest tenth) per pound.

R CASH RENT — PEANUTS R

1. *[If peanuts were not planted on **cash rented land**—see Q, go to S.]*

2. What was the (average) cash rent per acre for—

	— dollars per acre —	
	Irrigated	Non-Irr.
Irrigated (non-irrigated) land peanuts were grown on?	403	404

3. *[If peanuts were not planted on cash rented **irrigated** land—go to S.]*

4. I shall read some costs of irrigation; please tell me what percent the landlord **was or would have been** required to pay according to the agreement.

	— % —
4a. **purchased** irrigation water?	406
4b. **purchased** pumps and motors?	407
4c. **purchased** sprinkler systems?	408
4d. pumps, motor and sprinkler system **repairs**?	409
4e. power or fuel costs?	410

SECTION R - CASH RENTAL ARRANGEMENTS

Purpose — The purpose of this section is to determine the costs and characteristics of any cash rental arrangements that this operation was involved in for the production of peanuts.

Cash Rent — This section should be completed if cash rented acres were reported in Section Q, cells 387 through 389. If there is more than 1 cash rent agreement, choose the agreement involving the largest peanut acreage. In cases where 2 leases way qualify as largest in terms of the same number of acres, select the one that had the largest total production.

Item 1 — Item 1 determines if any peanuts were planted on cash rented land.

Item 2 — Record the (average) cash rent paid per acre of irrigated and non-irrigated land for peanuts. The entries should be to the nearest whole dollar.

If two or more tracts of irrigated (non-irrigated) peanuts were cash rented, under the same agreement, with differing per acre rent rates, compute a weighted average rent. For example, if 100 acres are rented for $60 per acre and 50 acres are rented for $40 per acre, the weighted average would be determined as follows:

100 X $60 =	$6,000
50 X $40 =	$2,000
150	$8,000

$8,000 divided by 150 acres equals $53.00 cash rent per acre.

Item 3 — The enumerator note between questions 2 and 4 determines if any peanuts were planted on cash rented irrigated land.

SECTION R - CASH RENTAL ARRANGEMENTS

Item 4

If the operation had more than one cash rented irrigated peanuts arrangement, select the agreement with the largest harvested acreage. In cases where 2 leases may qualify in terms of acreage select the one with the largest total production.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

S SHARE RENT — PEANUTS S

1. *[If no peanuts planted on **share rented land**—see Q, go to T.]*

Now I would like some information about peanut production on the **share** rented acres.

[if more than one share rent agreement] Let's take the rental agreement with the **largest** peanuts acreage.

	How many acres under this agreement were planted to **peanuts** in 1987?	411
2.	What was the LANDLORD'S percentage share of the **peanuts**? ....percent	412

3. *[In question 3 record what percent the landlord **was or would have been required** to pay according to the agreement in 1.]*

Now I would like to record the landlord's percentage share of any chemical, harvesting, and irrigation expenses.

What was the landlord's share for any—

		— % —
3a.	fertilizer, lime and soil conditioners?	413
3b.	pesticides?	414
3c.	seed?	415
3d.	all **harvesting** expenses?	416
3e.	all **hauling** expenses?	417
3f.	**purchased** irrigation water?	418
3g.	**purchased** pumps and motors?	419
3h.	**purchased** sprinkler systems?	420
3i.	pumps, motor and sprinkler system **repairs**?	421
3j.	power or fuel costs?	422

SECTION S - SHARE RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any share rental arrangements that this operation was involved in for the production of peanuts. With share rent, the farmer gives the landlord a percent of the harvested crop rather than cash.

Share Rental

The questions on this page refer to the rental agreement with the largest total peanuts acreage if the operation had more than one share rental agreement. In cases where two or more agreements may qualify as largest in number of acres, select the one that had the largest total production.

Item 1

This directs you to complete this page if any peanuts were planted on share rented land in Section Q, page 24.

Record the acres of peanuts included in this agreement.

Item 2

Record the landlord's share, in percent, of the peanuts.

Items 3a through 3e

Record the landlord's share, in percent, of the various input items used on the acres reported in item. Ask each item separately as the landlord's share may be a different percent for each item.

Items 3f through 3j

These questions ask irrigation costs. Leave it blank if the leased land under this arrangement was not irrigated. If the land was irrigated, the percentage paid by the landlord is to be recorded.

Determine if the specific irrigation cost item is relevant to the verbal or written agreement. If not, ask the next cost item, leaving the cell blank.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

SECTION S - SHARE RENTAL ARRANGEMENT

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

T FERTILIZER — PEANUTS T

1. What fertilizer was used on the entire peanut crop?
(Include all materials applied in the fall of 1986 for the 1987 crop, all primary nutrient materials and all materials paid for by the landlord.) *[Enter analysis or actual pounds in column 1.]*

	(1) MATERIALS USED		(2) How much was used per acre per application? 1/	(3) What was the unit *[enter code Lbs = 4 Actual Ing. = 2 Gal. = 1]*	(4) How many acres was this applied to? 2/	(5) Was it CUSTOM APPLIED? *[If YES, enter cost of application only 3/]* dollars & cents per acre
N	P_2O_5	K_2O				
527 16	528 20	529 6	530 75	531 4	532 250	533 __.__
534 50	535 —	536 —	537 —	538 2	539 100	540 __.__
541 82	542 —	543 —	544 100	545 4	546 70	547 __.__
548	549	550	551	552	553	554 __.__
TONS OF LIME			555 5		556 200	557 __.__
TONS OF GYPSUM (LANDPLASTER)			558		559	560 __.__
MICRO NUTRIENTS		Code	562	563	564	
[Specify] Iron		561 4	1	4	200	
[Specify]		565	566	567	568	

1/ *[If actual pounds of nutrients are reported in column 1, leave column 2 blank and enter code 2 in column 3 for actual ingredients.]*

2/ *[Total acres times the number of applications.]*

3/ *[Enter application costs only in column 5. If the application costs and material costs cannot be separated, leave blank.]*

Codes for Micro-Nutr.	
Boron	*= 1*
Calcium	*= 2*
Copper	*= 3*
Iron	*= 4*
Magnesium	*= 5*
Manganese	*= 6*
Molybdenum	*= 7*
Zinc	*= 8*
Sulphur	*= 9*

SECTION T - FERTILIZER

Purpose

To obtain data on the quantities of fertilizer elements used on this operation's peanuts and data on custom application rates.

Include any costs for fertilizer paid for, in part, or in full by the landlord.

Columns 1, 2 and 3

The first four lines are to record the use of major fertilizer nutrients which are:

Nitrogen N

Available Phosphorus (P2O5)

Water soluble potash (K2O)

These nutrients can be applied to a crop by several different methods, including:

(1) broadcast spreading of dry material;

(2) through an attachment to a drill or planter (this is usually dry material but liquid fertilizer can also be applied this way);

(3) through dripping liquid fertilizer material into the irrigation system;

(4) aerial application (found mainly on rice, but possible on other crops);

(5) and through chemical sprayer systems where small amounts of fertilizer are sprayed on to the foliage of a plant and absorbed through the leaves. For example, this is frequently done in cotton production and is called "foliar application."

SECTION T - FERTILIZER

Fertilizer can also be applied as plow-down prior to planting, at planting time, or as "side dressing" or foliar application throughout the growing season.

All of the fertilizer applied by these methods is to be included in this section.

Record in this section the quantities of nutrients applied per acre to peanuts. Use of these three nutrients can be reported in two ways: either (1) by analysis in percent of the material applied, or (2) in pounds of actual ingredients.

The common method of reporting this type of fertilizer will be by analysis, i.e. 16-20-6. When fertilizer is bought by the bag, the analysis will be printed on the front. In the first line of the example, in this section, is an illustration of this method. When the analysis is given, the first number is the percent of nitrogen, the second is the percent of phosphorous and the third is the percent of potash.

There are hundreds of different analyses of fertilizer. With mixing equipment now available, a producer can get almost any mix of fertilizer ingredients desired.

Some fertilizers contain only one nutrient, such as 0-45-0, which is 45 percent phosphorus with no nitrogen or potash. Another common fertilizer is 33-0-0, which is 33 percent nitrogen only.

SECTION T - FERTILIZER

The sum of the three analyses cannot exceed 85. Chemists cannot make fertilizer without at least 15 percent other ingredients as carriers. If a producer reports something like 35-45-20, he must be reporting pounds actual ingredients instead of analysis since the three percentages add up to 100 percent. **Just remember, the sum of the three percentages cannot exceed 85.**

A producer may say he applied 10-10-16-2. The fourth item is the percentage or pounds of a trace element which should be listed below under "other material."

The other common method of reporting fertilizer is in pounds of actual or active ingredients. In line 2 of the example, the producer reported 50 pounds of actual nitrogen, no phosphorous and no potash. In this case, he applied it to only 100 acres of peanuts. When a farmer reports application in pounds of actual ingredients, probe as to what type of fertilizer he applied. Some farmers are also confused on this item. He may have applied 50 pounds per acre of 0-0-33 which is only potash and would be only 16.5 pounds of actual potash. However, if he confirms that it was 50 pounds of actual potash, then you would record it as in line 2 of our example. In this case, leave column 2 blank and record a "2" in column 3.

Farmers may also report fertilizer by name. The following are some more common fertilizers with the usual analysis.

SECTION T - FERTILIZER

NAME	PERCENTAGE ACTIVE INGREDIENTS		
	N	P	K
Anhydrous ammonia	82	--	--
Aqua ammonia	20	--	--
Ammonium nitrate	33	--	--
Ammonium sulfate	20	--	--
Sodium nitrate	16	--	--
Urea	45	--	--
Super phosphate (22% & under)	--	19	--
Super phosphate (over 22%)	--	45	--
Ammonium phosphate	16	27	--
Diammonium phosphate	18	46	--
Monammonium phosphate	11	48	--
Potassium chloride	--	--	60
Potassium nitrate	13	--	44
Potassium sodium nitrate	15	--	14
Potassium sulfate	--	--	49

Anhydrous ammonia is the strongest nitrogen fertilizer available. It is a gas that must be kept under pressure (in a tank) and is injected into the ground. (It is a liquid when under pressure, but turns into a gas when released and will be lost if not injected into the soil). It is a very popular form of fertilizer because it is often cheaper than other forms. It can be reported to you as "anhydrous", as "82-0-0", or in "units of nitrogen" or as "pounds of active ingredients". Line 3, shows the use of 100 pounds per acre of anhydrous ammonia.

Aqua ammonia is one of the more common types of liquid nitrogen fertilizers. It is made up of anhydrous ammonia and water and is often found in western states. It may be reported in pounds or gallons. Although it is a liquid, it is usually reported in pounds of active ingredients.

Fertilizers applied through an irrigation system will often be reported in pounds or "units" of actual ingredients which can be recorded as on line 2.

SECTION T - FERTILIZER

Urea is also a commonly used nitrogen fertilizer because of its high analysis. It may be added through an irrigation system, usually as a nitrogen solution.

With many of the other named fertilizers the analysis may vary. Probe to determine if the farmer knows the analysis or pounds of actual ingredients applied. If he does not know the analysis, only the name, use the analysis given here, rounded to the nearest pound.

Report the amounts applied per application in columns 1 and 2. When column 1 reports active ingredients, leave column 2 blank. Multiple applications will be reflected in column 4, where total acres equals the number of acres times the number of applications.

Lime

Lime is usually applied broadcast as a dry material but wet limes are also available. The rates of application will be in tons per acre. It is used to reduce soil acidity. Use of lime will be concentrated in areas east of the Plains States. Very little is used in the West.

Gypsum (Landplaster)

Gypsum, or calcium sulfate, is used mainly by peanut growers. It's used to loosen heavy clay soil, and more importantly to supply calcium. It is usually applied in tons.

Micro-Nutrients

A producer may say he applied 10-16-16-2. The fourth item is a trace element or micro-nutrient. Materials which may be listed in this section include trace fertilizer elements such as iron, boron, magnesium, etc. Record the name of the material, code column 1 according to the codes shown and record the quantity used per acre.

Many different trace elements may be used. These can be used on any crop and more likely on irrigated fields. The quantities applied are usually small, sometimes only one pound or less per acre.

SECTION T - FERTILIZER

Column 4

For all materials reported, we need to record the acres to which this material was applied. It may have been applied to all the acres or only a portion of the acres. If a fertilizer was applied to the same acreage more than once, add the acreage for each application. However, remember that the type of fertilizer and the application rate must be the same to allow acres to be added together.

Many fertilizer companies (and private consultants) conduct field soil tests and may recommend slightly different fertilizer applications for each field, based on the soil analysis. The farmer may have a set of receipts showing quantities and timing of fertilizer applications separately but obtain the farmer's best estimate of the average composition of fertilizer, and adjust the acreage to reflect the number of applications.

In line 1 of the example, the operator reported using 75 pounds per acre of 16-20-6 on 200 acres, but he applied it twice to 50 acres at the same rate, hence we recorded a "250" in column 4.

Column 5

For materials containing N, P, and K and lime and gypsum, record the cost of custom application only in column 5. Data on the cost of these materials is not needed. These prices will be obtained from NASS' "Agricultural Prices" release. If the material is applied by the operator, column 5 should be left blank.

****

Note: When a material is custom applied, this operation should be excluded from Section X (Field Operation), page 33. When a material is applied by the operator, this operation should be included in Section X.

****

SECTION T - FERTILIZER

Also leave column 5 blank if the material was custom applied but the operator cannot divide the cost between materials and application costs.

If trace minerals are applied, they are generally mixed with the N, P and K fertilizer and are not applied separately. Do not double count any application costs already reported for N, P or K.

U PESTICIDES — PEANUTS U

1. How many acres were treated with—*[exclude seed treatments]*

	— acres —
1a. herbicides?	423
1b. insecticides?	424
1c. fungicides?	425
1d. nematicides? *[fumigant or granular]*	426
1e. growth regulators?	427

2. *[if 1a-1e none, go to 4, else, ask for products used in chronological order. If 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

3a. Was it applied before (code = 1), during (= 2) or after (= 3) planting? *[enter code]*	3b. What was applied? *[use codes on next page]*	3c. Was it custom applied? *[enter code]*	3d. How many TOTAL acres were treated? 1/	3e. How was it applied? *[broadcast-ground = 1, broadcast-air = 2, in-furrow = 3, band in/over row = 4, directed spray = 5, irrigation water = 6, spot treatment = 7]*
428	429	430	431	432	433	434
435	436	437	438	439	440	441
442	443	444	445	446	447	448
449	450	451	452	453	454	455
456	457	458	459	460	461	462
463	464	465	466	467	468	469
470	471	472	473	474	475	476
477	478	479	480	481	482	483
484	485	486	487	488	489	490
491	492	493	494	495	496	497

1/ Total acres times the number of applications.

	— acres —
4. How many acres of peanuts received no pesticide treatment in 1987?	518

SECTION U - PESTICIDES

DEFINITIONS

Herbicide - a chemical agent used to destroy or inhibit weed growth.

Insecticide - a chemical agent used to destroy insects.

Fungicide - a chemical agent used to prevent disease outbreaks or kill plant pathogens.

Nematicide - a chemical agent used to control root-infesting nematiodes--microscopic worm - like organisums.

Growth regulator - a chemical agent that affects plant development.

Items 1a through 1e — Record the number of acres to which herbicides, insecticides, fungicides, nematicides, or growth regulators were applied.

Item 2 — This screens to determine if no herbicides, insecticides, fungicides, nematicides, or growth regulators were applied. If so, go to item 4.

Item 3a — Herbicide products can be applied before, during or after planting. Insecticide products are generally applied during or after planting. Fungicide products are applied to the plant foliage to prevent disease outbreaks. Nematicides may be applied as liquid fumigants or granular materials. They are generally applied before or at planting. Growth regulators are applied to the foliage and produce shorter more erect vines. ASK the respondent to start with before-planting treatments then go through the sequence ending with after-planting treatments.

SECTION U - PESTICIDES

Before Planting

The herbicide or insecticide product is applied to the field before the peanuts are planted. This may occur the same day, a week or several months before planting. If a tillage implement is used to incorporate the herbicide or insecticide into the soil, be sure to record it in the field operations section (Section X). Liquid fumigants are applied 1 to 3 weeks prior to planting by injecting the material 8 to 10 inches below the soil surface.

During Planting

The KEY is that the pesticide product is applied to the field during the planting operation. This may be accomplished with spray tanks mounted on the side or rear of the tractor or by placing granular materials in a box on the planter and applying them to the soil through a separate tube. Insecticides for thrip control are placed in the seed furrow while nematicides are placed in a 7-12 inch band over the row.

DO NOT RECORD SEED TREATMENTS. Most peanut seed is treated with insecticides and fungicides by the seed company prior to packaging and sale to farmers.

After Planting

The herbicide or insecticide material is applied after the planting operation is completed. They could be applied a few days or several weeks later. Herbicide materials applied after planting but before weeds emerge kill the seedling as it germinates. Herbicides applied after the weeds have emerged are applied to the foliage and the plant is killed by translocation. Insecticide materials are applied to control foliage feeding insects such corn earworm, fall armyworm, cutworms, and lessor corn stalk borers. Fungicides are applied at first occurrence of disease and treatments may be made on a regular intervals throughout the growing season.

SECTION U - PESTICIDES

Item 3b

Most of the pesticide products used in peanuts production are listed in Section U, page 30. If the respondent indicates a product not listed, record under OTHER and specify the products trade name. This will enable later identification of the product. The product code or codes are to be recorded in columns 2, 3, and 4.

Most herbicide and insecticide applications used in peanuts production are applied to the field as single products, HOWEVER, 2 or more individual products may be mixed in the spray tank and applied to the field.

TANK-MIXES -- on the same line record the product code for each separate material mixed in the spray tank. If the tank-mix of Balan + Dual was the first application made to this field you would record on line 1 -- code 102 in column 2 and code 105 in column 3.

Item 3c

Code a YES= 1 or a NO = 2 if the product was custom applied.

Item 3d

Record the TOTAL acres treated with the product or tank-mix. If the same pesticide product is applied to a field more than once, multiply the acres treated by the times applied and record the TOTAL acres in 3d (col. 6). For example, if Barvo was applied 4 times to 100 acres, record 400 acres in 3d (col 6.).

Item 3e

Pesticide materials can be applied as broadcast treatments using either ground equipment or an aircraft, in-furrow with the seed, banded in/over the row, or as directed sprays at the base of the plant. Some farmers may apply materials through the irrigation system.

BROADCAST treatments are when the entire surface area of the field is sprayed with pesticide product. Broadcast application is the most widely used method for applying herbicide, insecticide and fungicide products used in peanuts production.

SECTION U - PESTICIDES

BANDED treatments are when only the area over the crop row is sprayed with the herbicide or insecticide material. The area between the peanut rows is not treated. At planting or before emergence of weeds or peanuts, herbicide applications are made by spraying the product in a 10 - 13 inch band over the peanut row. When banded herbicide treatments are used, weed control in the row middles in accomplished with mechanical cultivation.

Banded insecticide or nematicides applications are generally made at planting time. The insecticide product, generally in granular form, is placed in a 7 - 12 inch band directly behind the planter shoe and in front of the press wheel.

IN-FURROW treatments are sometimes used for insecticides applications. The product is placed in the seed furrow or over the top or to the side of the seed row at planting time through a separate attachment on the planter. DO NOT confuse this with seed treatments where the seed surface is coated with a pesticide product by the seed company before the peanut seed is sold to the farmer.

SEED TREATMENTS are not to be recorded.

SPOT treatments are when the pesticide is only applied to a portion of the field. Spot herbicide applications are generally made to control problem weeds, while spot insecticide applications are sometimes made to control insects around in the edges of the field.

Item 4 Record the total acres of peanuts which received no pesticide treatments in 1987.

U pesticides — peanuts — continued U

HERBICIDES		INSECTICIDES/NEMATICIDES	
Alanap	100	Asana	200
Amiben	101	Azodrin	201
Balan	102	Carbaryl, Sevin, Savit, Sevimol	202
Basagran	103	Comite, Omite	203
Blazer	104	Di-Syston	204
Dual	105	Dyfonate	205
Lasso	106	Dylox, Proxol	206
Paraquat +, Gramoxone	107	Furadan	207
Poast	108	Lorsban	208
Prowl	109	Nemacur	209
Sonalan	110	Nudrin, Lannate	210
Treflan	111	Parathion	211
Nemacur	112	Pydrin	212
2, 4-DB (Butoxone, Butyrac)	113	Temik	213
Other	199	Other	299
[specify] _____		*[specify]* _____	

FUNGICIDES		FUMIGANTS	
Benlate	300	Telone II	400
Bravo	301	Telone C17	401
Bravo S (+ sulfur)	302	Other	499
Difolatan	303	*[specify]* _____	
Kocide	304		
Manzate 200, Dithane 45	305		
Terrachlor (PCNB)	306		
Topsin M	307	**GROWTH REGULATORS**	
Sulfur compounds	308	Kylar	500
Other	399	Other	599
[specify] _____		*[specify]* _____	

V TRACTORS — PEANUTS V

1. Now I would like to list the make and model of all the tractors used on the peanut crop.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors provided by custom operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					— *[if OWNED]* —		
LINE NO.	*[enter make and model]*	WHAT WAS IT'S— Drive? *[enter code 2WD =2, 4WD =4, Craw =5, 4W ASST =6]*	PTO HP?	Fuel type? *[enter code]*	How many total hours was it used for all uses?	Was it bought since JAN. 1, 1981? *[If YES:]* When was it bought?	What did it cost?
1	Int. 4366	569 4	570 195	571 3	572 1000	573 83	574 50000
2	JD 4050	575 2	576 100	577 3	578 600	579 84	~~580~~ 41500
3	JD 4020	581 2	582 95	583 3	584 1000	585 —	~~586~~ —
4		587	588	589	590	591 — —	~~592~~ 592
5		593	594	595	596	597 — —	~~598~~ 598
6		599	600	601	602	603 — —	604

SECTION V - TRACTORS

Purpose — The purpose of this section is to inventory all tractors used for the production of peanuts on this operation in 1987.

Item 1 — Include tractors that were owned, rented, leased, or borrowed. Tractors owned in partnership should also be included. Exclude tractors used exclusively for custom work.

Column 1 — The pre-printed line number will be used to identify tractors used for various machine operations recorded later in Field Operations, Section X, page 33.

Column 2 — List the make and model for each tractor, such as John Deere 4050. It is important that you get both accurately as the horsepower may need to be verified in the State office based on the make and model. If more than 6 tractors were used, record these tractors at the bottom of the page.

Column 3 — Enter the code for the type of drive for the tractor lists in column 2.

Type of drive:

2=2WD - Two wheel drive - conventional rear wheel drive.
4=4WD - Four wheel drive - power is transmitted to all four wheels, full-time.
5=CRAW-Crawler - track-type tractor.
6=4W ASST - Front wheel drive option or front wheel assisted. Power can be shifted to the front wheels for four wheel drive as needed.

Column 4 — Record the horsepower (PTO) rating. If the operator does not know the rating, obtain his best estimate and write note in margin.

Column 5 — Enter the code for the type of fuel used.

Gasoline = 2
Diesel = 3
LP gas = 5

SECTION V - TRACTORS

Column 6 — Record the operator's best estimate of the total hours the tractor was used in 1987 for all purposes. Leave blank if the tractor was leased, rented or borrowed.

Columns 7 and 8 — If any of the tractors listed in column 8 were purchased, new or used, by the operator since January 1, 1981 record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

W TRUCKS — PEANUTS W

1. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for peanuts.]* 503 2

1a. What was the average number of miles driven per pick-up for **farm use only**?.....miles 504 6500

2. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for the production of peanuts.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom operators.)

TRUCKS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[If OWNED]*		— *[If OWNED]* —	
LINE NO.	*[enter make]*	Fuel type? *[enter code]*	Size? *[enter code single axle =1 tandem axle =2 semi =3]*	What were the total miles driven for FARM USE?	What percent was for peanuts?	Was it bought since JAN. 1, 1981? *[If YES ————]* When was it bought?	What did it cost?
7	Gmc	605 2	606 1	607 4000	608 50%	609 82	610 5000
8	White	611 3	612 3	613 7500	614 100%	615 —	616 —
9		617	618	619	620 %	621	622
10		623	624	625	626 %	627	628
11		629	630	631	632 %	633	634
12		635	636	637	638 %	639	640

SECTION W - TRUCKS

Purpose — The purpose of this section is to inventory all trucks used for the production of the peanuts on this operation in 1987.

Item 1 — Record the number of pick-up trucks that were owned, leased, rented or borrowed.

Exclude pick-up used by custom operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

Item 1a — Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 2 — Include trucks that were owned, rented or borrowed. Trucks owned in partnership should also be included. Exclude trucks used by custom operators who supplied their own trucks or trucks owned by the operator and used exclusively for custom work. Exclude pick-ups.

Column 1 — The pre-printed line number will be used to identify trucks used for various machine operations recorded later in Field Operations, Section X, page 33.

Column 2 — Enter the make of each truck to ensure that all trucks used during 1987 for the production of peanuts. For ease of enumeration, you may wish to progress from smallest to largest.

Column 3 — Enter the code for the type of fuel used.

Gasoline = 2 Diesel = 3 LP Gas = 5

Column 4 — Enter the size code for each truck.

Single axle = 1
Tandem axle = 2
Semi = 3

SECTION W - TRUCKS

Column 5 — Record the operator's best estimate of the total number of miles driven in 1987 for farm related purposes for each truck listed. If the truck was rented or borrowed, then leave this column blank.

Column 6 — Record the operator's best estimate of the percentage of miles driven in column 4 used for the production of peanuts.

Column 7 and 8 — If any of the trucks listed in the column 2 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

X FIELD OPERATIONS — PEANUTS X

1. Please describe field work performed, by machine only, on the peanuts, beginning with the first activity after harvest of the preceding crop. (Include all field operations. Include chemical and fertilizer applications self-applied. Exclude all custom operations.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[enter field operation or equipment used]	*[enter machine code if used]*	What size was it?	*[enter unit] 1/*	*[enter line no. of tractor or truck used] 2/*	How many acres were covered? *3/*	*[If OWNED ——————]* Was it bought since JAN. 1, 1981? NO-*[list next operation.]* YES-*[continue.]* When was it bought?	What did it cost?
Plow	641 6	642 4	643 3	644 1	645 300 ~~200~~	646 — —	647 —
Disk	648 11	649 18	650 1	651 1	652 400	653 — —	654 —
Plant	655 105	656 18	657 1	658 3	659 ~~318~~	660 81	661 750
Fert.	662 77	663 —	664 —	665 658	666 —	667 82	668 250
Herb.	669 91	670 —	671 —	672 658	673 —	674 84	675 200
Fert.	676 70	677 35	678 1	679 2	680 200	681 — —	682 —
Combine	683 122	684 20	685 1	686 99	687 200	688 — —	689 —
~~Plow~~	690 6	691 4	692 3	693 1	694 100	695 — —	696
Disk	697 16	698 18	699 1	700 2	701 200	702 — —	703 —
~~Plant~~	704 100	705 18	706 1	707 3	708 100	709 — —	710
Fert.	711	712	713	714	715	716 — —	717
Combine	718 120	719 20	720 1	721 99	722 —	723 — —	724 —
	725	726	727	728	729	730 — —	731
	732	733	734	735	736	737 — —	738
	739	740	741	742	743	744 — —	745

1/ [Feet = 1, Row = 2, Moldboard = 3.]
2/ [For horse or mule drawn, enter 77; for self-propelled enter 99.]
3/ [Record total acres for all times covered, i.e., disked 100 acres 3 times = 300 acres covered.]

Supplements	
009	—

SECTION X - FIELD OPERATIONS

Purpose

The purpose of this section is to establish what machinery and equipment was used by this operation for the production of peanuts.

Field Operations or Equipment

Crop Abandonment and Acreage Reduction Programs

If any of the peanuts was abandoned due to natural causes, all operations performed on the peanuts until (and except) plowing under should be included but not the operations of preparing the seedbed or planting of a replacement crop not enumerated. For instance, if a producer planted 125 acres of peanuts, and later replanted 60 acres to soybeans, you should show field operations for planting 125 acres plus all the associated tillage but exclude the seedbed preparation of planting of the 60 acres of soybeans. You should follow through to harvest on the remaining 65 acres of peanuts, but drop the 60 acres that were replanted to soybeans.

If he re-seeded to peanuts, all operations would be reported since this is still peanuts.

Field operations on peanuts which was later destroyed to comply with a government program or the operations after compliance should be excluded here.

For example, if a producer planted 100 acres of peanuts but later destroyed 15 acres, only the operations on the 85 acres that were kept in production should be counted.

This section should be completed by having the operator describe all of the field operations performed on the peanuts. A machine code sheet is provided for you to give to the respondent. The machine code sheet (SC-4) contains a listing of most machines used in field operations. Let the respondent give you the codes of the machines he used.

SECTION X - FIELD OPERATIONS

Column 1 — Record the operator's oral listing of the machines used, such as plow, disk, harrow, combine, etc. If any machine operation is reported for which a machine code is not available, be as descriptive as possible in the margin as to the machine used or ask the farmer if the machine could be describe as same type of one of the listed machines.

Column 2 — Using the machinery list provided SC-4, (yellow), enter the proper code for the machine. Since the operator has a copy of the machinery list, he may choose to find the codes for you. If two machines are pulled together (in tandem), list the first implement in column 2. The second or third tandem equipment requires additional lines and are discussed on the next page.

SECTION X - FIELD OPERATIONS

Columns 3 and 4

Enter in column 3 the size of the equipment listed in column 1. Enter both the width of the area covered by the equipment on one pass over the field and the code specifying the unit of width. Size relates to the swath covered by the machine and not necessarily the structural width of the equipment. For instance, a broadcast fertilizer spreader may be only 6 feet wide but it spreads fertilizer over a swath of 30-40 feet. In this case, 35 feet would be an appropriate entry.

Column 5

Enter the line number of the truck or tractor from the previous sections used to pull the equipment. If the equipment were self-propelled, enter a "99". If two tractors were used simultaneously to pull one piece of equipment, write a note at the bottom of the page. If horses or mules were used to pull the equipment, enter a "77".

Column 6

Record the total acres covered for all times this machine was pulled by the truck or tractor listed in column 5. For example, if 100 acres were disked 3 times enter 300 acres in column 6.

For land forming equipment, column 6 should be left blank. These machines are used to make or close ditches and the entire field acreage is not covered. All that needs to be recorded is which of these specific machines are used on the peanuts.

Columns 7 and 8

If any of the equipment listed in column 1 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

SECTION X - FIELD OPERATIONS

Questions recorded in this section with regard to fertilizer and chemical applications should agree with that reported earlier in Sections C, page 7, and U, page 29. For example, if a fertilizer was reported in section C as self-applied, then the operation of applying this fertilizer should appear here. If in section U a chemical was reported as custom applied, then the operation of applying this chemical should not appear here. It may help to finish this section by asking the operator what operations, if any, were missed.

It should already have been noted that this year we are not subsampling within a crop. For example, all the COP questions refer to the average practice without regard to cropping practice. A peanuts farmer may have both irrigated and non-irrigated acres on the same operation. If the operation has more than one cropping practice for the same crop and the field operations are different for each, start with the largest acreage and get the pertinent information. Then choose the next largest acreage and continue. If the field operation and the machines used are identical, go to the earlier line describing the machinery and add in the additional acres. There are two very important aspects to this section: 1) we need to identify every machine and the total acres it covered; and 2) we need to know the cost if purchased after January 1, 1981.

In this example the farm had 300 acres of peanuts, 200 were irrigated and 100 were dryland. Field operations were slightly different between the two. To handle this type of mixed situation, start with the largest acreage or in this case the irrigated acres.

SECTION X - FIELD OPERATIONS

The farmer says he plowed all 200 acres with a regular, 4 bottom plow, using the International tractor. To code this, write "plow" in column 1 and enter machine code 6 in column 2. Enter 4 in column 3 and 3 in column 4 to show the size as 4 bottoms or moldboards. The tractor was from line 1 on page 31 so enter a "1" in column 5. The farmer plowed all 200 acres once, so enter 200 in column 6. He bought the plow prior to January 1, 1981, so leave columns 7 and 8 blank.

The farmer then reported the other operations, including tandem for the irrigated acres and these are shown in the example.

Now go to the non-irrigated acres. When the farmer reports an identical (same machine and tractor) operation to one already listed, go to the line where it was originally listed and add in the additional acres. If the machine or tractor are not identical to what was previously listed, list it separately.

Begin with the first operation performed after harvest of the preceding crop. This will probably consist of a stalk shredding or a tillage operation depending upon the previous crop. This will be performed in the fall of 1986 or the spring of 1987 and after harvest of the 1986 crops. In the case of crops grown on fallow, the field operations listed should include the fallow operations. Fallow is defined as 12 months without a harvested crop.

Exclude custom operations and operations involving hauling of the crop. Include the raking, baling and hauling of straw bales, where applicable.

SECTION X - FIELD OPERATIONS

Tandem Field Operations

In many cases a farmer will perform 2 or more field operations at the same time. For example, in the 1984 FCRS for rice, it was not uncommon to find a spike tooth harrow connected to a field cultivator, both pulled simultaneously by the same tractor. Fertilizer and chemical applicators are other examples of common tandem operations.

In this year's FCRS we are recording tandem operations the same as in 1986. The reason for this is that by asking equipment purchase prices (column 8), we need each separate item of equipment more fully identified.

Therefore, when the farmer reports a tandem field operation:

1. Record the first piece of equipment as you would any other piece.

2. On the next line, record the machinery code of the second piece of equipment (the tandem operation) in column 2. Skip columns 3 & 4.

3. In column 5 enter the cell number where the line number of the trucks or tractor pulling the pieces is recorded. This will tell us which trucks or tractor is providing the power. Skip column 6.

4. Enter the year purchased and purchase price, if applicable.

5. If a third, fourth, or more pieces are used in tandem, repeat 2, 3, and 4.

Be sure information and each column is obtained (including columns 7 and 8 if the equipment was purchased since January 1, 1981) for every piece of equipment used to grow the peanuts.

SECTION X - FIELD OPERATIONS

In completing this section, it is recommended to start after harvest of the preceding crop and go through in order of the operations performed through to harvest of the peanuts. However, if you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine are the same.

The table has space for only 15 pieces of equipment. If more space is needed, use the worksheet (WS-7) provided.

Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

SECTION X - FIELD OPERATIONS

DESCRIPTION AND CODES OF FARM IMPLEMENTS

PLOWS

Chisel Plow (1)	A primary tillage machine either integral or trailing that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used ranging from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 10 inches.
Coulter-Plow (2)	A multi-purpose machine with one or two ranks of coulters, usually smooth or notched rim, followed by two or three ranks of chisel standards with a wide selection of ground engaging tools. The main purpose of the coulters is to cut through the crop residue in order to reduce plugging of the chisel standards. This is a primary tillage tool.
Subsoil Plow-Subsoil Chisel, V-Ripper (3)	A heavy tillage tool either toolbar mounted or trailing that has from one to 13 heavy shanks often with a parabolic curve. These shanks standards usually are fitted with replacement chisel points and can penetrate the soil up to 22 inches. The standards can be fitted with various auxiliary tools such as knives or lister bottoms. This allows the machine to deep-rib the soil and form beds at the same item.
Deep Ripper (4)	Similar to V-Ripper. For deep plowing.
Disk Plow (5)	A machine that does essentially the same work as the moldboard plow but has from one to ten large discs set at an angle to the direction of travel. The discs are mounted on individual beams or shanks. It is used in hard ground and where a regular moldboard plow does not scour well.

SECTION X - FIELD OPERATIONS

Plows (Continued)

Moldboard Plows (6 & 7)	A machine with one or more (up to 18) curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble. Moldboard plows may be made with one set of moldboards or with two sets. The two-way plows have two sets of moldboards, one left-handed and the other right. This allows the plow to be rotated so that all of the soil can be turned in the same direction. This eliminates dead furrows etc. This plow is especially used in irrigated areas to help maintain the level and slope of a field for furrow or bench irrigated.
Stubble-Mulch Plows (8)	Usually a tool bar or trailing machine with one or more standards that can be fitted with sweeps of various angles of penetration and several widths. Does not turn the soil over. Slightly mixes soil and stubble. (Noble blade).
Disk-Chisels (10)	A multi-purpose machine essentially a single disk followed by two or more ranks of chisel shanks.
Offset Disk Light-or-Heavy Duty (11 & 12)	A simple offset disk is the equivalent of one side of a tandem. All discs in each rank throw the soil in the same direction. Offset disks may vary in size from five feet to 35 feet or larger. The larger offsets have several disc units in each rank in order to gain flexibility. Types of disc blades may be cone or spherical and have diameters as large as 30 inches for extra heavy duty conditions. Offsets have several disc units in each rank in order to gain flexibility. Type of disc blades may be one or spherical and have diameters as large as 30 inches for extra heavy duty conditions.

SECTION X - FIELD OPERATIONS

Plows (Continued)

One-way (Disk-Tiller) (13)	A machine used mainly in the plains and Northwestern areas as a primary tillage tool. It mainly consists of a series of spherical disc blades, 20-60 inches in diameter, set on a single solid shaft. This machine throws the soil all in one direction. Sizes range from ten to twenty feet with multiple hitches available. One-ways have been replaced to some extent by chisel plows in many areas.
Single Disk (14)	Two sets of disc blades that throw the soil out from the center when angled. Size may vary from five to 40 or more feet. Used primarily as a secondary tillage tool. Most single disks have been replaced by tandems, offset or chisel plows.

DISKS (DISK - HARROW)

Tandem-Disk (Regular, Plowing or Heavy Duty) (15 & 16)	Two gangs of disc blades hitched in tandem; the front set throws the soil outward and the rear set throws it inward - width of cut may vary from 5 feet up to 35 or more feet. The blades may have different spacing between blades. 7, 9, and 11 inches are most common. The diameter of each blade may vary from 16 to as much as 24 inches. The shape of each blade may be either cone or spherical in shape. The cone blades are mainly for use in heavy soil conditions for primary tillage. These machines may be integral, 3 point hitch mount, trailing, double tandem or other configurations.

CULTIVATORS

Field Cultivator (20)	An implement similar to the chisel plow except of lighter construction and with the shanks closer together, about six inches overall. The shanks are usually of a spring steel, vibra-shank type. Ground engaging tools may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

SECTION X - FIELD OPERATIONS

Furrow-out Cultivator (21)	A row cultivator of the shovel variety where a fairly large shovel is placed to operate between the rows and open a furrow for irrigation. Thus, weeds are cultivated out and irrigation ditches are formed in one pass.
Rotary Hoe (22)	A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap. Rotary hoes are usually pulled at speeds of 6 mph and above and may be hitched to cover up to 50 feet or more.
Row Cultivator (Shank, Rolling, Lister, Disk) (23 & 24)	An implement with shanks arranged in such a manner that rows of crops can pass through without damage while the weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from one to twenty-four rows. Most are rear tool-bar or front mounted on tractors.
Field Conditioner, Seed Bed Conditioner, Soil Conditioner, Scratcher (30)	A lightweight wheeled tillage tool, usually two or three bars or ranks of spring steel teeth spaced 12-18 inches apart on the bars. Tine-tooth attachment available 30-60 feet wide.
Finishing Harrow (31)	Spiral cutting blade reels followed by spike teeth or field cultivator shanks, (2 or more ranks) possibly another rank of spiral knives and a smoothing board of wood or steel.

SECTION X - FIELD OPERATIONS

Flex-Tine Tooth (Coil Tine) (32 & 33)	Usually 5.5 to 6 foot sections of five bars or ranks. Teeth are spring steel about 5/16" in diameter and usually about 10 inches long. Teeth are formed in a spring coil and bolted to the bar, or set in rubber and bolted to the bar. Usually 50 teeth for 6 foot sections. At field speed, 3 1/2-5 mph, the tines vibrate in a circular motion to break clods, smooth seedbeds and kill weeds. Can be hitched up to 10 sections in one unit.
Rail, Pipe, Plank, Etc. (34)	Makeshift device used alone or in tandem with another implement to smooth soil or crunch clods.
Rod Weeder (35)	A steel rod usually square, 7/8 or 1 inch diameter-rotating in bearings on shanks. Rotation of rod is in reverse direction. Power for rod rotation is either from the drive wheels on the machine or hydraulic from the tractor. Some makes have a free-wheeling rod. Sections are normally 10 ft. wide but can be found to make-up units to 80 ft. Used in summer fallow areas and on relatively rock-free ground.
Roller Harrow (36)	Two ranks of packer rollers (smooth "vee" toothed "vee", crow foot, sprocket, birdfoot, or serrated type). Two or more ranks of chisel type teeth in between. Packer roller wheels turn independently of each other. 10-16 feet in size.

HARROWS

Spike Tooth (37)	Usually 5-6 foot sections of five bars or ranks with 7-8 steel spikes or teeth per bar. Angle of spikes is adjustable. Can be hitched up to 8 or 10 sections in one unit.

SECTION X - FIELD OPERATIONS

Spring Tooth Harrow (38)	Usually built in sections - 3-4 feet in width. Some wheeled models have a ten foot center section with wings to make up to a 57 foot machine. Teeth are spaced 12 inches on center on 3 bar models and 18 inches on 4 bar models. The teeth are spring steel and about 1 3/4 inches wide with a single or double curve. Points are replaceable on many models. The wheel-less, drag models have metal skids for transport and depth control.

BEDDERS

Disk or Lister Bedder (41)	An implement, usually 2 to 8 row used to make beds for seed planting using either disk blades or lister bottoms. Can be used with planters to plant either on the bed or in the furrow. Also used to break or "bust" the beds.
Bedder-Shaper (42)	A bedder with a forming device that flattens or shapes the bed in preparation for seeding. Shapers are sometimes used as a single toolbar implement. Planters may be attached.
Lister (Middle Buster or Breaker (43)	Same as bedder but lister (plow type) bottoms. Different types of bottoms available (hard land, general purpose, soft land and planter sweeps).
Rotovator-Bedder (44)	Same as disk or lister bedder except uses PTO powered knives to form beds.
Seed Bed Roller, Flat Roller (45)	Flat or concave rim wheel rollers. Used to pack soil in rows immediately before or after planting.

SECTION X - FIELD OPERATIONS

Subsoil-Bedder (Ripper-Hipper, Tiller, No-till Disk Bedder) (46)	Any type bedder either attached to a subsoil shank or as a separate bedder attached behind a subsoiler shank.

PACKERS

Culti-Packer (Pulverizer) (50)	An implement with a series of heavy crowfoot, inverted V-rim or serrated rim wheels running independently on a shaft. May be a single or tandem unit. Main uses of this implement are to firm the seed beds and reduce the size of clods and lumps of soil.
Plow Packer (51)	A packer designed to be pulled behind a moldboard plow with or with our a drill. Packer unit, may be spiral rod, crowfoot, inverted V, cogged or other.
Roller Packer (52)	Smooth roller or flat wheels on a shaft used to firm the seed bed and crush clods. May be home-made.

SECTION X - FIELD OPERATIONS

MISCELLANEOUS TILLAGE

Landall, Do-all (60)	A multi-tillage machine made up to 2 to 4 ranks of shovels, disks, coulters, blades or basket rollers.
Mulch-Treader, Picker-Treader (61)	Implement with tined wheels on a gang shaft that can be angled like a section of a tandem or single disk. Can be set up as a separate machine or as an attachment behind a stubble mulch plow. Tined wheels resemble rotary hoe wheels.
Roto-Tiller (62)	A series of bolo or slicer blades attached to a rotating shaft. Used as a primary or secondary tillage implement. Can be used in tandem with planting equipment as a minimum-till system. Mounted motor or PTO powered.
Roterra, Lely (63)	A machine with several sets of counter-rotating vertical tines that rotate with an overlapping action. The result is a stirring action; top soil remains on top, the soil is not turned over. Various attachments such as planters and sprayers are available. Tillage, planting, pesticide application and incorporation is possible in one trip.
Sand-fighter (64)	An implement used as an aid in controlling wind erosion. Essentially a shaft or bar with a frame and bearings to allow the shaft to rotate. Blades or teeth, about ten inches long and 2-3 inches wide, are welded to the shaft at intervals. The teeth enter the soil as the machine is pulled forward. This digging action roughens the soil and retards wind erosion. Sizes range up to 24 rows (72 ft).

SECTION X - FIELD OPERATIONS

FERTILIZER APPLICATORS, TRACTOR MOUNTED

Anhydrous (70)	Not very common. Supply tank tractor mounted with chisel shanks and injections on tool bar.
Dry (71)	(Includes lime and gypsum applicators) - Three point hitch mounted single or dual spinners with supply tank. Pneumatic - air delivery system through hoses to soil surface or below surface with hollow hoe shanks. The supply and distribution system is mounted on a tool bar. Drill Type- Drill type hopper with agitator and metering device to drop material on the surfaces of the soil.
Liquid (72)	Usually spray nozzles or injector units on a total bar. Tanks mounted on tractor.

FERTILIZER APPLICATORS, TRAILER MOUNTED

Anhydrous (73)	Usually a 2 or 4 wheel supply trailer feeding a chisel plow with injector tubes on each shanks. Can be high or low pressure type.
Dry (74)	(Includes lime and gypsum applicators) - Distributes the material by revolving spinner, pneumatic system through tubes to soil surface or below and the agitator metered bottom drop drill type.
Liquid (75)	Various configurations of two or four wheel trailers. Most use a boom with spray nozzles to surface or foliage apply the material. PTO or mounted engine powered.
Aerial, Fixed or Rotary Wing (76)	Airplanes or helicopters with fertilizer distribution attachments. Not too common.
Attachment to Implement (77)	Usually drop dry type attached to a drill or planter but may be liquid or gas type that is injected into the soil.
Manure Spreader (78)	Any type, apron with rear beater, flail or liquid spreader with pump spreader.

SECTION X - FIELD OPERATIONS

Self-Propelled (79)	A self-powered implement; may spread dry or liquid fertilizer, usually dry.
Truck Spreader (80)	Any method of application that is mounted on a truck. These usually are dry-broadcast type spreaders.

CHEMICAL APPLICATORS

Aerial (Fixed or Rotary Wing) (90)	An airplane or helicopter fitted with tanks and a spray boom to apply pesticides at very low altitudes.
Attachment to Implement (91)	Granular or liquid spray unit attached to a tillage, cultivator or seeding implement.
Large Self-Propelled or Truck (92)	Large converted truck or specially built machine to spray liquid or apply dry chemicals.
Motor Cycle Sprayer (93)	A small spray unit mounted on a 3-wheel motor vehicle. Spray with a boom, with hand held guns or wiper type. Mostly used for spot spraying.
Small Self-Propelled Sprayer (94)	Light weight self-propelled implement, (Spra-Cope) to be used on field crops such as wheat or barley.
Small Truck (Pick-up with Slide-in unit, Skid-in) (95)	Spraying mechanisms can be liquid boom, wiper, recirculating, micro-spray or dry spinner or tube delivery.
Tractor Mounted (96)	Supply tanks and spreading mechanism mounted on a tractor. Material may be spread by booms, recirculating sprayers, rope or wick wipers, row type nozzles or air blast. Facilitates spraying while cultivating.

SECTION X - FIELD OPERATIONS

Trailer Mounted (97)	Supply tanks and spreading mechanism mounted on a trailer pulled by tractor or other power vehicle. All types or spreading mechanisms.

DRILLS AND SEEDERS

Aerial Seeding (100)	Seeding by either fixed or rotary wing aircraft. Used some in rice areas and experimentally with other crops.
Broadcast Seeder (101)	Spinner type seeder, either tractor mounted (PTO or electric) or trailer mounted (wheel driven).
Drill-Air Delivery (102)	Same as conventional drill except seed is taken from a supply box through a manifold and blown by air through tubes to the seeding points.
Grain Drill (Hoe, Lister Shovel) (103)	Use lister bottoms, shovels, or hoes to prepare soil for seeds.
No-Till, Minimum-Till Drill, Zero- (Conventional) (104)	Usually fluted or ripped coulters that open up narrow prepared soil areas for the single or double disc drill shoes to deposit the seed in otherwise untilled soil. Herbicide attachments are available. Modified chisel plows with coulters also used.
Grain Drill (Disk) (105)	Seeder with seed box, metered seed feed through tubes to single or double disc openers. Tubes spaced 7", 9" or 10". May have fertilizer attachment.
Press Drill (106)	Drill with disks or lister bottoms with press wheels to firm soil around seed.

SECTION X - FIELD OPERATIONS

Lister Planter (111)	Planter mechanism either plate type or plateless, air or otherwise actuated. Seed is deposited in furrows made by lister bottoms either hard land or soft land type (may be equipped with fertilizer, insecticide, and/or herbicide attachments).
No-Till, Min-Till Planter (112)	Fluted coulters, rippled coulters and/or subsoil shanks used to open the untilled soil and prepare a narrow 2-4 inch tilled area for the planter units to deposit seeds. Usually used in conjunction with fertilizers, herbicides and insecticides.
Row Crop Planters, All Crops Planter, No Attachments (113 - 114)	Plate or plateless metering devices that drop seed through a boot or shank in a seed furrow or bed opened by a shoe or disc. Seed is covered by a press wheel. Planters may be trail type - wheel carried or tool bar mounted. Two to twenty-four rows.

SECTION X - FIELD OPERATIONS

HARVESTING EQUIPMENT

Combine, All Types (120 - 124 & 127 - 131)	An implement, self-propelled, PTO or mounted motor, that harvests crops either standing or in some cases picked up from windrows or swaths. The crop (grain) is separated from the straw, husks etc., straw, stalks, cobs and husks; cleaned and elevated into a holding tank for delivery into a truck, wagon or grain cart at intervals. Combines may be mounted motor or PTO driven; self-propelled with 2 wheels, 4 wheels or track drive. They can be set up for rice, corn, peanuts, beans, wheat and all small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups. They may be fitted as hillside, sidehill or level land machines. Special peanuts and other row crop heads are available.
Windrower-Swather (125 - 126)	A machine, either self-propelled or PTO, that cuts the standing hay or ripened grain with a reciprocating sickle aided by a revolving reel of four or more bats or sails. The cut material is deposited on a platform, either draper or auger type. The auger or drapers move the cut material either to the end or the center of the platform where it is discharged into the ground in a "windrow" or "swath". The hay swather may have metal and/or rubber rollers through which the hay passes. This "conditions" or "crimps" the hay to facilitate more rapid and uniform curing.

HARVESTING EQUIPMENT - COTTON

Chopper (stalk cutter) (140)	A machine with a ground driver reel with cutting blades, either angled or spiral, used to chop or cut cotton, peanuts or other heavy stalks. Also does minor soil preparation.
Module builder (141)	A four-sided form having an openable rear door. It has a traversing, mechanical compacter and compressor seed cotton into high-density stacks.

SECTION X - FIELD OPERATIONS

Cotton Gleaner (Rood) (142, 145)	A cotton harvesting machine, usually ground driven or PTO, pulled by a tractor that gleans or picks up loose picking or stripping or perhaps before harvest began.
Cotton Pickers (143 - 144)	A 2 to 4 implement usually tractor mounted or self-propelled that picks mature cotton from the bolls thru an intricate arrangement of spindles and doffers and deposits and cotton by means of an air stream into the holding basket. When full, the basket is emptied into trailer or cart for delivery to the gin at once or to a module builder. Pickers may make several trips over a field as ripening proceeds.
Cotton Strippers (146 - 148)	Made as self-propelled, PTO, pulled, or tractor mounted machines that pull or strip all of the bolls from the plant at one time over. Stripping is accomplished by rotating brushed and rubber flaps. Strippers may be 2-6 row or a platform type in some instances.
Trailer (149)	Used for transporting seed cotton form picker or stripper to gin.

HARVESTING EQUIPMENT - PEANUTS

Peanut Combine (150)	A peanut harvesting machine that picks up the windrow of peanuts left by the digger-shaker or and separates the peanuts from the vines. The peanuts go into a holding tank. Only PTO models are available. Peanut combines are used only on peanuts.
Peanut Digger-Shaker (151)	A machine, usually 2 or 4 row, that lifts the peanuts, vine and all; by means of long angled knives, from the soil. The soil is shaken from the vines with reel or chain type shakers and vines are deposited in a windrow.

SECTION X - FIELD OPERATIONS

Peanut Digger Shaker-Inverter (152)	Same as digger-shaker except vines in windrow are inverted so the peanuts lay on top of the vines.
Peanut Reshaker-Conditioner (153)	A machine used to fluff-up the windrows to enhance drying or conditioning.
Vine Cutter (154)	A device for cutting peanut vines from roots.
Wagon (155)	A wagon for hauling peanuts; can be used for drying peanuts.

TOBACCO HARVESTING EQUIPMENT

Combine (1 row) (201)	A self-propelled or tractor drawn machine (1 row) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (2 row) (202)	A self-propelled or tractor drawn machine (2 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (4 row) (203)	A self-propelled or tractor drawn machine (4 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Once-over Harvester (204)	An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper or a last-over harvester.

SECTION X - FIELD OPERATIONS

Priming Aid (Looping on sticks) (205)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field take small bunches of tobacco and place the butt ends at both sides of tobacco sticks and then wrap twine around the bunches of tobacco until the sticks are filled.
Priming Aid (Field racking) (206)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in bulk racks used for curing.
Priming Aid (Field box filling) (207)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in big boxes used for curing.
Priming Aid (Other) (208)	Aid of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field or at the barns place tobacco for curing in other than machines 205, 206, and 207 above.
Trailer (Harvest) (209)	A tractor or truck pulled trailer used to carry tobacco from the field to the barn.
Transplanter (210)	A power-down transplanting machine is operated by a driver, and carries 2, 4, or 8 persons on "setters", who ride the machine and alternate in placing or guiding the plants into the mechanism which spaces them at the proper intervals in the row. The machine opens the furrow, dumps a measured quantity of water and draws the soil about the roots of the plants.
Tying Machine (211)	A machine that loops tobacco with an automatic tying or sewing machine. The tobacco leaves and sticks are placed on a moving conveyor belt which passes them under a sewing head. The leaves are attached to the stick by stitches at the butt end.

SECTION X - FIELD OPERATIONS

MOWERS AND BALERS

Amish Harvest (400)	Non-motorized device for harvesting hay.
Bale Wagon (401 - 402)	This tool can be simply a wagon or trailer with a wide flat bed used to haul bales. Likewise, it can be a self-propelled unit that picks up the bales and stacks them on the bed in a manner that allows the baler to be unloaded by power to form a compact stack of bales. PTO units are also available. Same units also are able to pick up the stacked bales for further transport.
Bale Loader (403)	A device, either ground or engine driven that picks up the bales from the ground and deposits the bales onto the trucks or trailer as it moves down the windrow of bales. Largely used for small rectangular bales but models for the large round bales are available.
Balers (404 - 407)	Balers pick the hay or straw up from a windrow and compact it into either round or square bales which may be small (40 - 125 pounds) or large (1000 to 2000 pounds). Balers may be motor mounted, PTO or self-propelled.
Rotary Mower-Cutter, Chopper (408)	A machine similar to a rotary lawn mower used largely to cut weeds and roadsides but may be used to harvest a crop for hay or to shred crop residue. Size range from 4 feet to 20 or more feet of cut when hitched in multiple units. Available in integral, semi-mounted and pull-type. Mostly PTO powered. Cuts by means by a rapidly rotating blade either rigid or flexible.
Mower Conditioner PTO (409)	Consists of a cutterbar, a reel, a pair of full-width conditioning rolls, and a deflector. Width ranges from 7 to 12 feet.

SECTION X - FIELD OPERATIONS

Mower Conditioner (410)	Self-propelled.
Disc Mower (411)	A mower with a number of cutting blades on rotating discs mounted on a bar. The discs are driven from the bottom by a series of flat gears. The entire bar and disks go under the crop as it is cut.
Drum Mower (411)	A series of rotary drums or cylinders with blades attached. The drums are driven by an enclosed gear or chain train from the top. PTO powered.
Flail Mower Shredder (Rotary Chopper) (412)	A machine that mows, cuts or shreds crops by means of steel blades or knives on a horizontal rotating shaft or drum. The high speed of the drum (about 1850-2000 RPM) cause the hinged knives to cut or shred the crop. Can be used to harvest hay or to shred crop residue. Range in size from 5 to 15 feet or more.
Sickle Mower (413)	A machine with a reciprocating cutting sickle that runs in a cutter bar with guards and ledger plates. Mowers may be 3 pt. mounted, semi-mounted, belly mounted or trail type. Usual sizes are 7 to 9 ft. sickle or cutter bars but some heavy cutters are only 5 foot.
Dump-Rake (414)	A series of large "C" shaped teeth attached a bar or frame. This frame can be raised or lowered alternately to pick up the hay and "dump" it into windrowers. Either ground or PTO powered. Sizes range from 8 to 32 or more feet.
Rake Side Delivery (415)	A rake with a four or five bar reel. This is set at an angle to the direction of travel. The reel rotates, either PTO or ground driven, in the opposite direction of the carrier or tractor wheels. This motion along with the angle sweeps the crop into a windrow on the left or the right. Raking swath is 7 to 9 feet.

SECTION X - FIELD OPERATIONS

Wheel-Rake (416)	A series of overlapping wheels, four to five feet in diameter with spring teeth on the rim of the wheels. The wheels are mounted on a bar or frame at 10 to 60 degree angle to the direction of travel. The wheels are turned by contact with the crop and the ground. The 5 wheel rake covers about 16 3/4 feet and the 7 wheel about 20 feet.
Stacker Mover (417)	A forklift-like device for moving hay stacks.
Stacker Automatic (418)	A device for compacting hay.

LAND FORMING OR SHAPING EQUIPMENT

Backhoe (500)	Large shovel or scoop operated with a mechanical arm. Often used for ditch digging.
Corrugator (501)	A device of various configurations that produces vee shaped indentions in the soil to aid in the distribution of irrigation water. The units may be mounted on a row cultivator for row crop or on a tool-bar for seeded crops.
Disk Border Maker (502)	Set of two single discs or two sets of 3 or more discs used to make borders for irrigation. Can be reversed to tear down borders. Usually mounted on a tool bar.
Ditch Closer (503)	A machine usually mounted on a 3-point hitch or on wheels pulled behind a tractor that pulls dirt together to fill in an irrigation or drainage ditch.
Ditcher (Vee Rotary) (504)	A machine either with a vee shaped blade or a rotary auger or fan that is used to cut field irrigation or drainage ditches. Either 3-point or trail mounted.

SECTION X - FIELD OPERATIONS

Float (505)	A device, usually homemade, that is used for minor rough levelling. Soil moving bars or blades may be made of wood or metal.
Land Plane-Leveler (506)	A machine used primarily to level land for irrigation or to improve drainage. This machine usually has two or more sets of wheels on a long wheelbase supporting one or more bowls, blades or baskets that are intended to carry soil from high points to low areas in a field. Some systems are controlled by a laser beam for precise levelling.
Levee-Plow-Disk (507)	A machine used to throw up levees or ridges between rice fields. Most machines have two sets of discs, each with one to three disc blades that throw the soil up into a levee. Most levee discs are toolbar mounted. The disc sets can be reversed to tear down the levees.
Rear Mounted (508)	A curved blade, 5 to 8 feet long and 15 to 24 inches deep, attached to the 3-point hitch of a tractor. Most can be angled sideways and up and down from ground level either manually or hydraulically. Used for ditching, back filling, scraping and rough levelling.

OTHER IMPLEMENTS

Chaff/Straw Saver (600)	An Attachment pulled behind a combine that bunches or stacks the chaff and/or straw as it comes from the combine. The small hay (straw) stocks are left in the field for later retrieval. The chaff or straw is used as feed or bedding.
Electric-Discharge Weed Killer (601)	A machine that has a PTO powered generator to produce an electric charge that uses the weed plant to complete an electrical circuit to the ground. The current causes the plant cells to rupture, killing the plant. Weeds must be taller than the plants in order for the method to be feasible. Utilizes a 50 KW generator powered by a 1000 RPM-PTO on a minimum 120 HP tractor.

SECTION X - FIELD OPERATIONS

Hay Wagon (602)	Flat bed wagon used to haul hay.
Off-field Thresher (603)	Stationary threshing machine.
Rock Picker (604)	A heavy duty machine with pick-up teeth or heavy duty rotating reels that deposits rocks and stones from "1" diameter to 500 pound boulders in a tank or bucket for removal from the field. Some rock pickers or harvesters are equipped with elevators that deposit the rocks directly into a truck or trailer.
Rock Windrower (605)	A heavy side-delivery or wheel type rake that moves the stones into windrows in order to speed up the process of rock picking.
Rodent (Gopher) Killer (606)	A machine with a sub-soil shank that allows poisoned bait to be injected into the soil at the same depth as the gopher burrows or runways. Fields are usually treated in a criss-cross pattern to get better coverage.
Rubber-Wheeled Weed Puller (607)	A series of paired rubber tired wheels set touching one another and rotating in opposite directions. As the machine moves forward at a level above the crop but below the weed tops, the weeds are caught by the spinning wheels and are pulled out.
Flail (608)	Same as flail mower. See 412.
Rotary (609)	Same as a rotary mower. See 408.

SECTION X - FIELD OPERATIONS

Silage Harvester (610)	Similar to forage harvester for chopping fodder.
Stalk Shredder (611)	A rotobeater with hard metal rods or cutting blades attached to a revolving horizontal shaft.
Tractor or Truck-no Attachments (612)	Self explanatory.

Y CUSTOM and TECHNICAL SERVICES — PEANUTS Y

1. Was any agricultural **service or custom work** done on this operation for a fee or on a contract basis for the peanuts? *[To be considered custom work, both machinery and labor must be provided.]*

☑ YES ☐ NO - *[go to 3]*

2. I shall read several types of custom operations, please tell me if it was used or not and if so, what it cost.

(1)	(2) Total cost — $ — OR	(3) Cost per unit dol/cents and	(4) Total units
2a. land leveling? ☑ NO ☐ YES —►	519	__•__	____
2b. plowing? ☐ NO ☐ YES —►	520 3,000	__•__	____
2c. planting? ☑ NO ☐ YES —►	521	__•__	____
2d. cultivating? ☑ NO ☐ YES —►	522	__•__	____
2e. harvesting and hauling? ☑ NO ☐ YES —►	523	__•__	____
2f. harvesting only? ☐ NO ☑ YES —►	524 1,000	__•__	____
2g. hauling only? ☑ NO ☐ YES —►	525	__•__	____
2h. baling peanut hay? ☑ NO ☐ YES —►	935	__•__	____

3. Were any technical services, such as soil testing or scouting, performed on the peanuts for a fee?

☐ YES - 3a. What was the total cost?.....dollars [526]

OR cost/unit dollars & cents [__•__]

and total units [ ]

☑ NO

SECTION Y - CUSTOM WORK

Purpose — To obtain data for certain custom operations performed on the operation's 1987 peanuts.

Definition — Custom work is the hiring of a machine service which provides both the machinery required and the labor necessary to complete the operation. Frequently, a respondent may rent a machine and operate it himself. This is not a custom service but rather normal machinery rental. Machinery rental operations should be reported in Section X, Field Operations.

Item 1 — Check the appropriate box indicating if the operator hired any custom work done on the 1987 peanuts. Exclude any custom fertilizer or chemical application charges recorded earlier in the questionnaire. Exclude "swap" labor.

Complete the item 2 if "Yes" is checked.

Item 2 — This item is the <u>total cost</u> of a custom operation that will be used in tabulations. This can be obtained by either of two ways. First, if the operator knows the total cost for a particular custom operation, enter this figure in column 2 and go to the next preprinted operation. <u>This is all of the information that is needed.</u>

If the operator does not know the total cost, then the second method is to obtain the cost per unit (acre, hour, ton, etc.) for the custom operation (enter in column 3) and then get the total number of units payment was made on and record in column 4. The total cost can then be computed in the clerical edit.

Column 1 — Custom operations are prelisted. If an operation is reported that is not prelisted, make notes explaining the operation. When recording any data associated with custom harvesting, determine if other operations were included. Check a NO or YES after asking about the pre-listed operation.

SECTION Y - CUSTOM WORK

Column 2 — Enter the total cost associated with each operation. **If this column is completed, skip columns 3 and 4.**

Column 3 — Record the cost per unit associated with each operation. Entries are to be in dollars and cents. **If there is an entry in column 3 there must also be an entry in column 4.**

Column 4 — Enter the corresponding total units for which there was payment. For computing the total cost, it is irrelevant what these units are.

Z DRYING — PEANUTS Z

1. What percent of this operation's 1987 peanuts were— — % —

1a. FIELD dried? *[no heat]* 934

1b. CUSTOM dried? 933

1c. dried with OWN equipment? 932

100%

2. *[if FIELD drying used—Item 1a positive, continue, else go to 3]*
Did this operation field dry in sacks *(= 1)* or wagons (trailers) *(= 2)*? *[enter code]* 921

2a. *[if wagons (trailers) used, ask]*
How many wagons (trailers) does this operation own which are normally used for field drying? 920

3. *[if CUSTOM drying used—Item 1b positive, ask, else go to 4]* — $/ton —

What did the custom drying cost? .....Wet (green) 919
or Dry 918

3a. What percent of the peanuts were hauled by—

(1) this operation's own trucks..... 917 %

(2) this operation's own wagons (trailers)? ..... 916 %

—How many did it own?..... 915

(3) the drying firm's trucks and wagons (trailers)..... 914 %

100%

4. *[if OWN equipment used—Item 1c positive, continue, else go to AA]*

batch = 1
bin = 2
cont. flow = 3
dryer box on own truck = 4
WAGON = 5

4a. What type of fuel was used for the peanuts dried with this operation's own equipment? *[enter code]*..... 931 / 930

4b. What type of equipment was used? .....code

4c. *[if WAGONS used—code = 5, continue, else go to AA]*

How many wagons did this operation—

(1) own? 929

(2) borrow (from someone else)? 928

(3) rent (from someone else)?..... 927

—*[if rented wagons positive]* — $ —

What was the cost? ..... 926 / 925

4d. What was the average size of ALL the wagons?..tons

4e. Does this operation have any wagon drying SYSTEMS?
[drying systems normally service several drying wagons]

☐ YES ☐ NO - *[go to AA]*

(1) How many?..... 924

(2) What is the maximum number of wagons that can be dried at one time?..... 923

SECTION Z - DRYING PEANUTS

Purpose — The purpose of this section is to obtain a description of the methods used to dry peanuts so that drying costs can be estimated. A large variety of drying methods and costs exist. Knowledge of these systems is necessary to describe the most common. Drying information is to be determined for all peanuts produced on the operation and not separate out by dryland or irrigated acreages nor for quota vs. non quota peanuts.

Item 1 — Record the percent of the total 1987 peanuts that were (a) field dried without supplemental heat, (b) custom dried using someone else´ equipment, or (c) dried with equipment the operation owned in 1987.

Item 2 — If the operation dried any of its peanuts in the field (1a positive), record whether the majority of the field-dried peanuts were dried in sacks (code = 1) or in wagons or trailers (code = 2).

Item 2a — If wagons were used in item 2, record how many wagons the operation owned in 1987 that were normally used in field drying.

Item 3 — If some peanuts were custom dried (item 1b positive), ask item 3. Record the custom drying costs for green (wet) or dry peanuts (whichever method was used) to the nearest dollar per ton.

Item 3a(1) — Record the percent of the custom dried peanuts hauled by the operator´s own truck.

Item 3a(2) — Record the percent of the custom dried peanuts hauled by the operator´s wagons or trailers, and how many of the wagons and trailers the operator owned.

Item 3a(3) — Record the percent of the custom dried peanuts hauled by the drying firms trucks, wagons, or trailers.

Item 4 — If some peanuts were dried with this operator´s own equipment (item 1c positive), ask item 4.

SECTION Z - DRYING PEANUTS

Item 4a — Ask what field was used for drying and enter the code. Valid codes are electricity = 1, gasoline = 2, diesel = 3, LP gas = 5, natural gas = 6, and solar = 7.

Item 4b — Ask what type equipment was used for the majority of the drying, using the codes for the box on the left. Choices include (1) batch, (2) bin, (3) continuous flow, (4) a dryer box on the operator's own trucks, or (5) wagon.

Item 4c — If wagons were coded - 4b (=5): ask,

Item 4c(1) — How many wagons did the operator <u>own</u>?
Item 4c(2) — How many wagons did the operator <u>borrow</u>?
Item 4c(3) — How many wagons did the operator <u>rent</u>?
What was the total rental cost?

(Note: Although the dryer with its heater, fan, etc, must be owned by the operation, the peanut wagons to which the dryer is attached may be borrowed or rented).

Item 4d — Record the <u>average</u> size of the wagon in tons. If sizes vary, add all the capacities and divide by the number of wagons.

Item 4e — Determine if the operator had any wagon drying systems. A wagon drying system is equipment that distributes heat from one dryer to several drying wagons.

Item 4e(1) — Record the number of wagon drying systems.

Item 4e(2) — Record the maximum number of wagons that can be dried at any <u>one</u> time. Sum the number of wagons for each system in 4e(1).

AA IRRIGATION — PEANUTS AA

1. *[If peanuts were not irrigated—see Q—go to BB.]*

I will now mention several sources of irrigation water. Please tell me the number of acres of peanuts irrigated from each source and the total number of other crop acres, if any.

	(1) Source	(2) [check] None	(3) Peanuts - acres -	(4) [check] None	(5) Crops OTHER than peanuts - acres -
1a.	wells	☐	747 100	☐	748 50
1b.	purchased water	☑	749	☑	750
1c.	surface sources (rivers, lake, ponds) which were—				
	(1) free flowing	☑	751	☑	752
	(2) pumped by your own pumps	☑	753	☑	754
	(3) pumped by private association pumps (and no charge for water)	☑	755	☑	756
1d.	OTHER sources (such as return water or waste water)	☑	757	☑	758
	[Add 1a + 1b + 1c + 1d. Enter below.]				
1e.	TOTAL	☐	759 100	☐	760 50

SECTION AA - IRRIGATION

Purpose

The purpose of this section is to obtain a description of the irrigation equipment and irrigation practices used by this operation in the production of its peanuts. Information obtained will be used to estimate irrigation costs.

Irrigation

Information recorded here explains where and how water is obtained, what equipment is used in obtaining the water and conveying it to the fields, and what equipment is used to apply the water to peanuts.

Include all applications of water that were made to benefit the 1987 peanuts crop including those which may had been made in the fall of 1986.

Definitions

Surface Water

Water stored in impounded or dug pounds, lakes, or flowing in streams and rivers.

Ground Water

Water from wells.

Pumping Lift

The vertical distance from the water level during pumping to the outlet at the surface of the ground. It is the static water level plus draw-down.

Drilled Depth

The vertical distance from the surface of the ground to the bottom of the drilled hole.

Acre-Inch

A quantity of water sufficient to cover one acre of land one inch deep.

SECTION AA - IRRIGATION

Head Ditches

The main ditch at the top of each field or basin from which water is drawn for application to the field.

Item 1 Source of Water

Consider only water sources used to irrigate acreage on which peanuts were produced in 1987. Do not list sources if the peanuts were not irrigated by that source. For example, in 1987 a producer purchased water from an irrigation district and on an adjoining acreage pumps from his own wells. He produced 200 acres of oats on the land for which he purchased water. He produced 300 acres of peanuts and 200 acres of barley on the land irrigated by his own pumps. Do not record "purchased water" as a source of water for any acreage since the source was used entirely for his oat crop. Do record 300 peanut acres irrigated and 200 other acres irrigated by "wells".

Record the number of peanut acres irrigated with water obtained from each source listed. Record the number of acres of peanuts irrigated by each source and the number of all other crops irrigated by each source from which peanuts were also irrigated.

If the respondent's only source of irrigation water is wells (groundwater), record the total number of peanut acres and the total number of other irrigated acres in cells 747 and 748. If the respondent obtained all irrigation water from an irrigation company or district, record the acres of peanuts in cell 749. **In this situation, the operator or land owner must pay annual fees or charges for each irrigation and sometimes may pay both.** If the respondent obtained irrigation water from more than one source, record the acreage of peanuts irrigated from each source.

SECTION AA - IRRIGATION

Often, a producer near an area served by an irrigation district may be charged a fee by the irrigation district even though he does not receive any water from that district. This fee reflects the value of the ground-water recharge resulting from the use of irrigation district water in the area. In this situation, do not record any acres as irrigated with purchased water.

If the respondent obtained water to irrigate peanuts from surface sources (rivers, lakes, ponds, etc.), record the acres irrigated in cells, 751, 753, or 755. Record acres irrigated with free flowing water in cell 751. Record acres irrigated with water pumped by the operator's pump in cell 753. Include in cell 755 acres irrigated using water pumped by privately owned pumping companies or associations where there is no cost for the water itself. Such an arrangement is commonly found along the Snake River in Idaho.

In some areas, water may be obtained from more than one source and conveyed to the same fields. In this case obtain the respondent's best estimate of the proportion of water obtained from each source and divide by acres so that the total in cell 759 equals the total acres of the irrigated peanuts.

Water provided by an irrigation district should be considered "purchased water" regardless of the source to the irrigation district. The irrigation district may obtain all of its water by pumping from deep wells or via canal from a lake, reservoir, or stream. All acreages irrigated with water provided by the irrigation district or canal company should be listed in item 1b.

SECTION AA - IRRIGATION

In some cases, farmers may have formed an association to provide water. These associations may maintain pumps and ditches and charge the individual farmer for his share of these costs. If the association does not charge the producer for water, but only for the cost of delivery, then report acres irrigated in item 1c(3) "pumped by private association pumps".

Do not record any association (in item 1c3) receiving water from Bureau of Reclamation, Army Corps of Engineers, or State Water Projects, even though some associations (and irrigation districts) may have negotiated for free water from these sources.

Item 2 Well Water

Consider only the wells used to irrigate the 1987 peanuts. They need not be used exclusively for the peanuts but, must have been used at least partially to irrigate the acreage. For our example, the farmer has 5 wells. Two of these wells provided water exclusively for peanuts in 1987. One well was used for irrigating both peanuts and barley and two wells provided water exclusively for barley. Record "3" wells in cell 761.

For the wells used to irrigate peanuts, record the average depth, average pumping lift, and average well casing diameter. The average depth refers to the average drilled depth, as defined earlier. The average pumping lift was also defined earlier. The depth and lift will depend on the water table level and the amount of drawdown on that water table during pumping. The average well casing will probably range from 12 to 36 inches, with 20 inch casings being relatively standard throughout much of the West.

Question 2e attempts to survey the prevalence of ground water pumping restrictions. If these restrictions are in effect, check YES, and ask the respondent if he or she would have pumped more water if the restriction had not prevented it.

SECTION AA - IRRIGATION

Item 3 — Purchased Water

If the producer reported purchased water applied to the peanuts (cell 749), report the source and cost of that water here. Include the cost for water applied to all crop acres.

Circle the principal source of that purchased water. Some producers may belong to irrigation districts which receive water from Bureau of Reclamation projects, Corps of Engineer projects, state water projects, and the district's own wells. Obtain the producers estimate of the source that provided the largest quantity of water to his irrigation district in 1987. The price charged by such multi-source irrigation districts will be a weighted average of the costs of obtaining water from each source.

Item 3a — Report the cost of purchased water, either as a total cost, or the cost per acre, if the charge is assessed this way. Report the cost of water applied to the total irrigated acreage. If the irrigation district charges per acre-foot delivered, compute the total costs.

Item 4 — Surface Sources

Enter the average <u>vertical</u> lift from the water source to the peanuts fields. This is not the distance from the water source but rather the change in elevation between the water source and the fields.

AA irrigation — peanuts — continued AA

2. *[If no peanuts were irrigated from WELLS, IC 747 zero, go to 3]*

2a. How many wells were used to irrigate the peanuts? 761 3

2b. What was the (average) depth? 762 325

2c. the (average) pumping lift? 763 110

2d. the (average) well casing diameter? 764 20

2e. Do laws and regulations impose restrictions on the amount of ground water this operation is allowed to pump?

☐ YES ☐ NO - *[go to 3]* 765

(1) Would this operation have pumped more groundwater if legal restrictions had not prevented it?

☐ YES ☐ NO 766

3. *[If no peanuts were irrigated with PURCHASED WATER, IC 749 zero, go to 4.]*

Where did the purchased water come from? *[circle code]* 767

Bureau of Reclamation 1
Army Corps of Engineers 2
State Project 3
Private Project 4
Some other source 5
[Specify] _____

3a. What was its total cost? .....dollars 768

OR

What was the cost per acre? .....dollars 769

4. *[If no peanuts were irrigated from SURFACE SOURCES, IC 753 zero, go to 5.]*

4a. If the water had to be pumped, what was the average vertical lift to the peanut irrigation area? .....ft 772

SECTION AA - IRRIGATION

Item 5 Surface Sources with Private Association Pumping

Obtain data on the pumping costs of surface water provided by a private pumping association where there is no cost for the water itself. (If cell 755 is zero skip to item 6). The cost reported here will include primarily power costs but may also include costs for repair and maintenance of the pumps and pump ownership costs. Record either the total cost for this crop (cell 837) or cost per acre (cell 838).

Item 6 Irrigation Pump Power Units

Here we want to obtain descriptions of the power units used to perform all of the pumping of irrigation water for peanuts. If no pumps were used to deliver water to the fields or to apply it, skip to item 7.

Include in this section all power units used in 1987 for irrigation of the peanuts. Include power units used with tailwater or wastewater pits or pump-back systems.

In areas where water is applied with sprinklers, it is common to have two pumps in operation: one pump to pump water from the well, and a booster pump to pressurize the water through the sprinkler system. Record each of these separately.

<u>Do not include</u> information in this section about power units owned and operated by an irrigation company or district even if the respondent is part owner of the irrigation company.

AA irrigation — peanuts — continued AA

5. *[If no peanuts were irrigated from PRIVATE ASSOCIATION PUMPS, IC 755 zero, go to 6.]*

— $ —

What was the total pumping and overhead cost of private assocation water for this peanut crop? ..... | 837 |

OR

What was the pumping and overhead cost per acre for the peanuts?.....dollars & cents | 838 __•__ |

6. What pumps were used?
[Exclude all public and private project pumps.]
[If none, go to Item 7.]

(1) *[water source or pump utilization]*	(2) What was it powered by? *[enter code]*	(3) How many of these were used?	(4) WHAT WAS THEIR (AVERAGE)— Size?	(5) Pumping rate per unit in GPM?	(6) Hours of use per unit for ALL crops?
Booster Pump 1/	773 1	774 3	775 200	776 1400	777 3000
Wells	778 1	779 3	780 600	781 1500	782 3000
	783	784	785	786	787

1/ [Pumps that are used solely to provide pressure in the pipeline.]

Column (1)	Column (2)	Column (4)
Water Sources or Pump Utilization Types	Possible fuel/ power types	Size
Wells	Electric	Horsepower
Rivers, lakes, ponds	Gasoline	Cubic Inches
Tailwater, wastewater pits	Diesel.....	Cubic Inches
Holding ponds	LP Gas.....	Cubic Inches
Irrigation above ditch or canal	Natural Gas	Cubic Inches
	Tractor *[code = 9]*....	Horsepower

SECTION AA - IRRIGATION

Column 1 — Enter a narrative description of the water source/pump utilization listed at the bottom of the table.

Column 2 — Enter the code of the fuel or power type that applies to the power unit(s) listed on each line. Codes to use are:

Electricity	= 1	LP Gas	= 5
Gasoline	= 2	Natural Gas	= 6
Diesel	= 3	Tractor	= 9

Column 3 — Enter the number of units of that particular size and power type. In our example, the producer has 3 wells that are pumped by 600 horsepower electric motors. Each well also uses a 200 horsepower electric motor to pressurize the water for sprinkler application.

The operation may also pressurize water from an irrigation company for application by sprinkler.

Column 4 — Record the average size of the unit.

Column 5 — Enter the average pumping rate in gallons per minute (GPM) for the pump(s) listed on each line. Pumping rates should be those found during normal operation.

The booster pump should pump at the same rate as the well pump. If the well water is pumped into a canal or other storage facility, and then applied with a pump, do not consider this a booster pump, but code the water source appropriately.

AA irrigation — peanuts — continued AA

7. What irrigation system(s) was used to apply the water to the peanuts? *[check system in col. (1) and fill in cols. (2)-(6)]*

(1) System	(2) How many acres of peanuts were irrigated?	(3) How many times was it irrigated?	(4) What were the average inches of water applied each time?	(5) How many acres of ALL crops were irrigated?	(6) How many systems were there?
☐ hand moved	788	789	790		
☐ solid set/season	791	792	793		
☐ side roll (wheel line)	794	795	796		
☐ center pivot ☐ low pressure	797	798	799	800	801
☐ high pressure	802	803	804	805	806
☐ big gun (cable tow)	807	808	809	810	811
☐ gated-pipe	812	813			
☐ siphon tubes	814 *	815			
☐ flood	816 *	817			
☐ OTHER	818 *	819			

7a. Any other systems? *[enter above]*

7b. *[Add Column (2) and enter total below in 7c.]*

7c. TOTAL... 820

[Does acreage in 7c check with total irrigated acres of peanuts in Q? ☐ YES - go to 7e. ☐ NO - recheck totals. If discrepancy remains, ask.]

7d. Were any of these acres irrigated with two or more application systems?

☐ YES ☐ NO 821

SECTION AA - IRRIGATION

Column 6 — Report the average hours used by each power unit. In our example, the respondent estimates that his wells and booster each run 1000 hours per year. He informs us that the pumps pressurizing the irrigation company water run 24 hours for the 4 1/2 months that water is delivered. Irrigation pipe is moved so that the pumps irrigate a fairly large acreage. Of the 135 days that he irrigates (4 1/2 months X 30 days per month) he estimates that the pumps average being down 10 days each for repairs, and time lost when sections of pipe are moved. We estimate that the pumps average 3000 hours each (125 days X 24 hours per day).

Item 7 — For this final item, record information which describes the equipment and practices used to apply water to peanuts.

Descriptions — Sprinklers:

Hand-Move Sprinkler System: Portable aluminum pipe system which must be moved one or more times per day to meet crop irrigation requirement. May use a variety of different sprinkler sizes. Adapted to most soil types, topography, field size, and shape.

Solid-Set Sprinkler System: Portable aluminum pipe system which is placed in the field(s) at the start of the irrigation season and left in place throughout the season. May use a variety of sprinkler sizes, but normally designed for small sprinklers and low application rate. Adapted to most soil types, topography, field size and shape.

Permanent Sprinkler System: Buried pipe system with only the risers and sprinklers above ground. This system has the same characteristics as the solid-set sprinkler system, except that the labor requirements will be lower. Code as solid-set sprinkler.

SECTION AA - IRRIGATION

Self-Propelled Side-Roll Wheel Move: Self-propelled continuous move side-roll system on towers spaced 80 feet apart designed to be used on square field 1320 feet by 1320 feet and on crops up to 9 feet in height. Water is supplied to unit by flexible rubber hose. Restricted to reasonably flat terrain. Unit can be end-towed from one field to another. This system may also be referred to as a Linear Move System.

Side-Roll Wheel Move: Wheel-move lateral line, designed to be used on rectangular or square fields up to 2000 feet in length and on low growing crops 4 feet or less in height. Unit is moved by a small gasoline engine. Wheel are spaced 40 feet apart. Designed to irrigate a strip 60 feet wide at one setting. Restricted in use to reasonably flat terrain. Unit must be disassembled to move from one field to another. Best suited to fields of at least 20 acres in size and 1000 to 1500 feet long.

Side-Roll Wheel Move With Tow Lines: Wheel move lateral line with tow lines trailing behind the main lateral line, with one to three sprinkles per tow line. Unit is moved by small gasoline engine. Wheels are spaced 40 feet apart. Designed to be used on rectangular or square fields of 40 acres or more in size and up to 1320 feet in length and for crops up to 9 feet in height. A strip up to 180 feet wide can be irrigated at one field to another. Restricted to reasonably flat terrain.

End-Tow: Aluminum pipe sprinkler lateral mounted on dolly wheels or skids spaced 20 to 40 feet apart. Unit is end-towed through the field from one position to another by a tractor. Designed to be used on pasture and hay crops, but can be used on some row crops and tree fields. Designed to be used on rectangular or square fields up to 2000 feet in length with alley through the center of the field. Best suited to flat to slightly rolling topography. Strip up to 80 feet wide can be irrigated at one setting. Enter as a side-roll.

SECTION AA - IRRIGATION

Carousel Sprinkler-Traveler: A system with a rotating boom that sprinkles or sprays water as it propelled forward across a field. Water supply is either hose or supply ditch. Most systems are self-propelled with a mounted gas or diesel engine. Enter as a side-roll.

Center-Pivot System: Self-propelled, electronic or hydraulic continuous move sprinkler or spray nozzle system which travels around a center pivot point on towers spaced 80-100 feet apart. Pattern irrigated is essentially a circle; however, some system have features that provide for coverage of much of the four peanutsers. Best suited to square fields of 40 acres or more in size, slope of less than 10% and high infiltration rate soils. Can be used on fields up to 240 acres in size. Unit can be end towed from one field to another, but normally limited to use on three adjacent fields. Low pressure is less than 45 PSI.

Self-Propelled Gun Traveler; Self-propelled by separate engine, or hydraulic continuous move, single large gun mounted on a four wheel trailer. Water is supplied through a flexible rubber hose. Best suited to rectangular or square fields 800 to 1500 feet in length, but can be used on odd-shaped fields. Designed for use on straight rows, flat to slightly rolling topography and medium to high infiltration rate soils. Enter as a big gun.

Reel Type-Hose Pull: Uses a non-collapsible (hard) hose on a reel. The gun type sprinkler attaches to the hose and is stationed at one end of the field and the hose reel at the other. As the water passes through the hose it activates a turbine drive system that rolls the hose onto the reel and pulls the sprinkler gun and carriage across the field - ready for the next move. Enter as a big gun.

SECTION AA - IRRIGATION

Reel Type-Cable Pull: Similar to hose pull systems except the sprinkler gun and carriage is pulled by a cable as the hose is dragged in a loop across the field. These systems often require a grassed strip to operate on. Enter as a big gun.

Gravity Irrigation System

Gated Pipe: A pipe, usually plastic (PVC) or aluminum, that is fitted with spaced closeable gates or holes that permit the water to flow into furrows or basins. For flood irrigation the regulating gates are usually controlled manually but can be automated. This system usually requires some powered pumping system but can flow with gravity from a reservoir or diversion dam.

Siphon Tubes: Short tube usually made of aluminum or plastic that are used to "siphon" water from a ditch into a furrow or field. Tubes are three to five feet in length, are curved and range in size from about one inch to three inches in diameter.

Graded-Furrow: Application of water in small channels having continuous slope in direction of water movement to irrigate row crops. Best suited to sites where furrow grade does not exceed 1%. Fields must be well graded and tail water facilities should be installed. Not designed to apply light application of irrigation. Water is applied to furrows by gated pipe or from ditches by siphon tubes. Enter according to how water is applied.

Contour-Furrow: Similar to graded furrow, but furrows are laid on the contour to reduce slope. Can be used on all soils except light sandy soils and soils that crack. Enter according to how water is applied.

SECTION AA - IRRIGATION

Contour-Ditch: Form of controlled surface flooding. Water is distributed from ditches that run along the contour. Water is discharged through openings in ditch bank, by siphon tubes or over uniformly graded lower lip of ditch. Water flows in unconfined sheet down slope from one contour ditch to the next and is collected in next ditch for reuse. Suited to noncultivated crops such as legumes, grasses, and small grains. Enter according to the application system used.

Contour-Levee: The areas bounded by small contour levees and cross levees are completely flooded. Application rate is considerably larger than intake rate. Water remains on soil until irrigation needs are met and excess is then drained away.

Adapted to crops that can tolerate flooding for up to 12 hours such as rice, cotton, peanuts, soybeans, small grains, and grasses. Land forming is required and adequate surface drainage is an essential part of the system. Irrigation water must be of good to excellent quality. Enter as flood application.

Corrugation: Partial surface flooding method. Water is applied in small channels or corrugations evenly spaced across the field. Initial streams are greater than intake rate of soil, but must be cut back when water reaches lower unit to prevent runoff or tail water recovery systems must be installed. Best suited to close growing, non-cultivated crops such as legumes, grasses, and small grains. Enter as flood application.

Graded-Border: Type of controlled surface flooding. Field is divided into strips by parallel dikes. Stripes should have little cross-slope. Best suited to soils with moderately low to moderately high intake rates. Used to irrigate legumes, grasses, small grains, orchards and vineyards. Enter as flood application.

SECTION AA - IRRIGATION

Level-Border (Basin): Rapid application of water to level or nearly level area enclosed by dikes to retain water at uniform depth until it infiltrates the soil. Best suited to soils with moderate to slow intake rate and a moderate to high available water holding capacity. Can be used to irrigate a number of crops without changing the basic layout or rate of application. Accurate land leveling is required. No irrigation water is lost by runoff. Enter as flood application.

Level-Furrow: This method of irrigation uses small channels without grade and is used to irrigate crops planted in or between the furrows. A large stream of water is required and water remains at a uniform depth throughout the furrow until it infiltrates the soil. Best suited to soils having moderate to slow infiltration rate and moderate to high available moisture holding capacity. Best suited to row crops, but can be used for grass crops. Enter as flood application.

Sub-Irrigated: Maintenance of a water table at some predetermined depth below the surface through the use of ditches, sub-surface drainage tubing or mole drains and water control structures. Conditions for use of this system are limited. These conditions include flat topography, an impermeable layer or permanent water table at a shallow depth of 4 to 8 feet and a permeable sand layer where the ditch or tile is installed and a fairly permeable soil profile not less than 24 inches deep. The sub-irrigation system also serves as a drainage system. A good water supply is needed to rapidly supply irrigation water needs. Enter as other.

AA irrigation — peanuts — continued AA

7e. *[If SIPHON TUBES or FLOOD was used (see previous page), ask]*

What percent of the ditching was—

(1) cement lined?	822	%
(2) dirt lined?	823	%
(3) *[if dirt lined]* How many times were head ditches put in during 1987?	824	
(4) How many fields of peanuts were irrigated using siphon tubes or flood irrigation?	825	

8. What was the most **common** method used to schedule the time and amount of water applied? *[circle code]*

visual observation of the crop and/or soil	(1)
use of a calendar schedule	2
media information on crop water needs	3
water delivered by irrigation organization with no scheduling choice	4
use of soil moisture sensing instruments such as tensiometers or blocks	5
commercial scheduling service	6

826

9. I will read several water-saving management techniques, please tell me if this operation practiced any of them. *[circle code]*

	YES	NO	
9a. tailwater pits and reuse systems	(1)	2	827
9b. wide-spaced bed furrow systems (widths greater than 45 inches)	1	(2)	828
9c. compacted furrow beds	(1)	2	829
9d. furrow diking	(1)	2	830
9e. short-set irrigation [stopping irrigation prior to water reaching the end of the field]	1	(2)	831
9f. limited irrigation [applying water at a rate less than that which would maximize yield]	1	(2)	832
9g. elimination of pre-plant irrigation applications	1	(2)	833
9h. laser-leveling techniques to adapt field slope	1	(2)	834
9i. surge-flow application	1	(2)	835
9j. cablegation water application management system	1	(2)	836

SECTION AA - IRRIGATION

Drip or Trickle: Maintenance of an adequate portion of the root zone of the plant at, or close to, full soil moisture capacity during the growing or productive cycle of the plant's life. Water is supplied through emitters attached to a supply pipe or porous tubing at a rate of 3 to 15 gallons per minute (gpm) per acre depending upon the crop and the application method. System is designed to be operated daily or at rather frequent intervals. Designed to be used on all soil types, except extremely high infiltration rate soils, on rolling to flat topography, primarily on tree, vine, nursery and greenhouse crops and high cash value row crops. Enter as other.

Column 2 — Enter the peanuts acreage that is irrigated by each type of application system. If more than one application system is used on the same acres of the peanuts, enter the total acres under each system.

Column 3 — Record the number of times water was applied to peanuts with each application system.

Column 4 — Enter the average quantity of water applied per application by each application system. Water quantities must be recorded in acre inches.

Columns 5 and 6 — For the center pivot and big gun applications systems, record the total acreage of all crops irrigated during one season in column 5 and record the number of center pivot or big gun systems used to irrigate these acres in column 6.

If any of the acres of peanuts were irrigated with two systems (on same acres) the total acres recorded in cell 817 will exceed 759. If this is the case, complete item 7d indicating that the same acres were irrigated with two systems.

Item 7d — In item 7C check enter YES if the total acres irrigated of the peanuts exceeds the planted acreage of the peanuts. This should only occur when some of peanuts acres were irrigated with more than one application system.

SECTION AA - IRRIGATION

Item 7e

If siphon tubes or flood systems were indicated, enter the percent of each type of ditch used in item 7e (cells 822 and 823). Record in cell 824 the number of times head ditches were plowed in if dirt lined ditches were used. In cell 825, record the number of fields of peanuts irrigated by siphon tubes or flood application methods.

Item 8

Scheduling Irrigation

Irrigation technology has changed drastically in recent years as costs have risen and water availability has declined. To better understand the respondent's decision making factors, item 8 has been added. Most farmers still use sight and touch to determine the fields' water needs, but others have turned to professional scheduling or to sensing instruments. Circle the most common method from those listed.

Item 9

Water saving techniques

Along with more precise scheduling, many farmers have adopted one or more water saving techniques to more efficiently use their irrigation water. These can range from eliminating certain applications or changing field layout to reuse systems. Circle <u>each</u> listed method that the respondent practices.

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CHAPTER 9
FLUE-CURED TOBACCO
1987 FARM COSTS AND RETURNS SURVEY

CHAPTER 9 - FLUE-CURED TOBACCO

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

[South Carolina enumerators should go to Section BB, page 42 if the code box 002 at the top of the page has a "2" entered.]

General

The flue-cured tobacco cost of production part of the survey is part of an ongoing program to estimate costs of producing various commodities in the United States. In addition, USDA is mandated to provide cost estimates for setting flue-cured and burley price support levels. The last flue-cured survey was conducted in 1979. A cost of production survey was conducted for burley in 1984. Data are now needed to update farm budgets and to compare changes in structure and harvest mechanization of flue-cured farms between 1979 and 1987.

Production cost estimates are now used directly in setting price support levels for flue-cured and burley tobacco. Prices received by growers and costs of production are used to establish average price support levels each year. The price support level is the level for the preceding year adjusted by changes in the 5-year moving average of prices (two-thirds weight) and changes in the cost of production index (one-third weight). For purposes of setting the price support level, costs include general variable expenditures, but exclude costs of land, quota, risk, overhead, management, marketing contributions, and other costs not directly related to tobacco production. The Secretary of Agriculture can set the price support between 65 and 100 percent of the calculated increase or decrease.

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

In addition to meeting the mandated requirement for costs in setting price support levels, cost estimates are useful in analyzing the competitiveness of growers among regions and for different acreage sizes. This survey will establish new benchmarks for flue-cured tobacco production, enabling ERS to establish and update production costs. The survey is designed to answer questions in major production areas of Florida, Georgia, North Carolina, South Carolina, and Virginia, and to estimate a national cost of producing flue-cured tobacco.

In addition to cost of production estimates, the information will also be used for the following:

1) Determine the current number and size distribution of flue-cured management units and compare changes with 1972 and 1979.

2) Determine tenure of tobacco producers and compare with tenure of 1972 and 1979.

3) Determine the characteristics of operator and labor resources and determine changes over the last 15 years.

4) Determine the contribution of the tobacco enterprise to family income.

5) Evaluate the changes in harvest technology that have occurred since 1979 and determine their effect on harvest costs and labor use.

6) Finally, the data collected will be useful for evaluating potential changes in demand for cigarettes, the price support-production control program, and labor demand and supply.

The results of this survey will serve as an information base to help answer some of the questions concerning the economic conditions surrounding flue-cured tobacco production.

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

FLUE-CURED TOBACCO TERMS AND DEFINITIONS

1. Automatic Harvester - A self-propelled or tractor drawn machine that mechanically removes leaves from a tobacco stalk. This machine is sometimes referred to as a tobacco combine.

2. Automatic Harvester Driver - The person(s) who operates the automatic harvester in the field.

3. Big Box Barns (Big Bin) - Compact structures similar to bulk barns housing tobacco that is placed in big boxes.

4. Bulk Barns - Compact structures housing tobacco that is placed in bulk racks.

5. Bulk Rackers or Box Fillers - Workers who place tobacco leaves in bulk racks or big boxes. This job may be done at the barn or in the field. Bulk racks are steel frames that are about 50 inches long and 15 inches high. The equivalent of about six to eight conventional sticks can be placed in a bulk rack. Big boxes are containers of various dimensions in which tobacco is placed for curing. They hold the equivalent of 8 to 20 bulk racks of tobacco. From 8 to 22 big boxes are generally placed in big barns.

6. Conventional Barn - A wooden frame structure of various dimensions housing tobacco that is placed on sticks.

7. Filling Bulk or Big Box Barns - The person(s) who places filled bulk racks or big boxes of tobacco in bulk or big box barns.

8. Hand Looper (Stringers) - Workers take small bunches of tobacco and place the butt ends at both sides of tobacco sticks (sticks are 3 1/2 feet to 5 feet long and have a diameter of 1/2 inch to 1 inch). Then, twine is wrapped around the bunches of tobacco until the sticks are filled. This job may be done at the barn or in the field while riding on a priming aid.

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

FLUE-CURED TOBACCO TERMS AND DEFINITIONS

9. Hander - The person(s) who hands leaves of tobacco to the person(s) tying the leaves onto sticks.

10. Hanging in Conventional Barns - The person(s) who takes the sticks of tobacco and places them on tiers within the barn. This person(s) may stand on the floor or stand on tiers within the barn.

11. Once Over Harvester - An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper.

12. Primers (Croppers) - Workers who either walk or ride down the rows of tobacco and break off the tobacco leaves. These workers are sometimes referred to as croppers.

13. Priming (Cropping) - The process of removing tobacco leaves from the stalk. Used in a broader sense such as "number of primings with this system," it refers to the complete process of harvest, from the removal of leaves through curing and removal from the barn.

14. Priming Aid - Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco.

15. Priming Aid Drivers - The person(s) who operates the priming aid in the field.

16. Rent In -A term commonly used when a tobacco allotment is rented for the growing season. The allotment is usually grown on the farm to which it was originally allocated.

17. Tractor Drivers - A person(s) who drives the tractor in the field and/or to and from the barn.

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

FLUE-CURED TOBACCO TERMS AND DEFINITIONS

18. Tiers - Several layers of wooden rails inside a conventional barn, horizontal to the ground on which sticks holding tobacco are hung.

19. Tobacco Allotment - An allotment permitting a specified number of acres of tobacco to be grown on a certain farm.

20. Tobacco Poundage Quota - A quota associated with a flue-cured tobacco acreage allotment that sets a limit on the pounds of tobacco that may be sold by the operator in a marketing year.

21. Tying Machine Worker - The person(s) who positions sticks and tobacco leaves on the tying machine. Also included is the person who takes sticks of tobacco from the tying machine and shakes the sticks to cause loose leaves to fall off prior to passing the stick into the barn before hanging. This person is sometimes called a shaker.

Q ACREAGE and SEEDING — TOBACCO Q

1. *[If no flue-cured tobacco planted—see B—go to BB]*
Now I need more information about the flue-cured tobacco planted on this operation in 1987.

2. How many acres of flue-cured tobacco were planted on (irrigated, non-irrigated) land that this operation—*[record to the nearest tenth of an acre]*

	— acres planted —		
	Irrigated	Non-Irr.	Total
2a. owned?	384 • _	385 • _	386 • _
2b. rented on a cash basis?	387 • _	388 • _	389 • _
2c. rented on a share basis?	390 • _	391 • _	392 • _
2d. used rent free?	393 • _	394 • _	395 • _
[Enter totals below and in right-hand column]			
2e. TOTALS	396 • _	397 • _	398 • _

3. What was the NUMBER of tobacco fields in this operation? 750

4. What was the average one-way distance from the headquarters to the fields? .....miles 751

5. *[If tobacco irrigated]*

Now I need some information on the irrigation system used on the tobacco. If more than one system was used, let's take the system used on the **majority** of the flue-cured tobacco acreage.

5a. Was the system a center pivot, traveling gun (or cable tow), hand moved or something else? *[circle code]*

center pivot.....1
traveling gun.....2
hand moved 3
other.....4

OFFICE USE 752

5b. How many applications of water were made? 753

5c. What was the average inches of water each time? ..... 754 _ • _

5d. Was electricity, gasoline, diesel or LP gas used? *[enter code]* 755

All List and area in—
NC, VA

SECTION Q - ACREAGE AND SEEDING - FLUE-CURED TOBACCO

Purpose To determine the tenure of the operator's 1987 flue-cured acreage, irrigation systems, and quota arrangements.

General The total acres include all owned, rented, and rent free land for which the operator makes the day-to-day management decisions. The total acres may be contiguous or non-contiguous. If the operation is non-contiguous, the operator must make the day-to-day decisions for each parcel of land in the non-contiguous operation.

Item 1 The enumerator note instructs you to go to Section BB if no flue-cured tobacco was planted for harvest. You may need to refer to Section B to see if any flue-cured tobacco was reported.

Item 2 Acres listed for items 2a through 2e must be recorded to the nearest tenth (1/10) of an acre. For example record:

5 acres as 5.0, 7.4 acres as 7.4, 21 acres as 21.0

Item 2a Include land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustees of a divided estate. The acreage recorded reflects plantings on owned land.

Item 2b -2d Include all land rented from others (private individuals, Federal, State, railroad, etc.) for which the operator (2b) paid cash rent on a per acre basis, (2c) paid for the land with a share of the flue-cured tobacco (either standing or harvested), or (2d) used the land rent free. The acreage recorded in 2b-2d reflects plantings on rented land.

Item 2e Record the acres of flue-cured tobacco that were irrigated or non-irrigated by land tenure. The sum of the reported irrigated and non-irrigated acres should equal the (2e) total acres of flue-cured tobacco planted on this operation in 1987.

SECTION Q - ACREAGE AND SEEDING - FLUE CURED TOBACCO

Item 3 — Record the number of different tobacco fields that you grew tobacco on in 1987. Separate fields are involved when the tobacco acreage is separated by roads, woods, pastures, or other crop fields. Different tobacco field locations exist when equipment is physically moved from one field location to another.

Item 4 — Record the average distance in miles from the barns (headquarters) to the fields.

Item 5 — Data on the operator's irrigated acres of flue-cured tobacco will be obtained here.

Item 5a — Circle the code for the type of distribution system used. If the operator used more than one type of distribution system, record information for the distribution system used on the majority of the operator's flue-cured tobacco acreage. Circle the code number of the system used: 1=center pivot, 2=traveling gun, 3=hand moved, and 4=other.

Item 5b — Record the number of times water was applied to flue-cured tobacco with the Item 5a distribution system.

Item 5c — Enter the average inches of water applied for the applications recorded in Item 5b.

Enter the inches to the nearest tenth. For example, if 1 inch of water was applied followed by a second application of 0.4 inches of water, then the average inches of water for the two applications would be 0.7 inches.

Item 5d — Record the code for the type of fuel used for the pump or power unit in getting water to the distribution system. Codes entered should be electricity=1, gasoline=2, diesel=3, and LP gas=5. These codes are listed on the SC-5 code sheet under Fuel Sources.

Q1 EFFECTIVE QUOTA and RENTAL ARRANGEMENTS — TOBACCO Q1

— pounds —

How many pounds of the *[see B]* tobacco production reported earlier were **sold** in 1987? 756

Now let's talk about the flue-cured tobacco **EFFECTIVE** quota that this operation had in 1987.

Let's distribute the effective quota into owned and rented.

3a. How many pounds were— — pounds —

(1) owned? ..... + 757

(2) rented in—
—on a **cash** basis? ..... + 758
—on a **share** basis? ..... + 759

(3) rented out ..... — 760

(4) *[(1) + (2)—(3)]* 761

(5) Then the total **effective** quota was *[read number in (4)]*. Is that correct? *[If not, make corrections.]*

[if owned positive]
How many of the pounds of quota that this operation owned were **purchased** in 1987? 762

4a. *[if positive]*

What was the average cost per pound? .....dollars and cents/lb 763 __• __ __

[if cash rented positive]

What was the (average) cost of the cash rented quota? ....dollars and cents/lb 764 __• __ __

CHAPTER 9 - FLUE-CURED TOBACCO

SECTION Q1 - EFFECTIVE QUOTA AND RENTAL ARRANGEMENTS - FLUE-CURED TOBACCO

Purpose — To determine 1987 flue-cured tobacco production, sales, ownership or rental of quota, and any share rental arrangements for each operation. This section is designed to determine current practices in obtaining quota as well as some of the associated costs.

Item 1 — Enter the number of pounds that were sold in 1987 from 1987 production. Do not include flue-cured tobacco sold in 1987 that was produced in 1986 or earlier.

Item 3 — This series of items establishes the flue-cured tobacco effective quota for the operation. The production of flue-cured tobacco is regulated by a Federal poundage quota price-support program. Individual farms receive a farm marketing quota based on their share of the national marketing quota. This is called the flue-cured tobacco basic quota.

However, the amount of tobacco a grower can market in a given year varies from the basic quota because provisions are made to carry forward under-marketings and over-marketings. These adjustments result in the effective quota. The maximum that can be carried forward is 100 percent of the effective quota.

A producer can market 103 percent of his effective quota without paying a penalty and may consider this as his effective quota, therefore, by sure to record only the 100 percent quota and not the 103 percent.

Item 3a — (1) Owned - Record the number of quota assigned to the operator's owned land in 1987 after adjustments were made in the basic quota for over and under production in previous years. Do not record the total quota he could sell without penalty which can be as much as 103 percent of the effective quota.

SECTION Q1 - EFFECTIVE QUOTA AND RENTAL ARRANGEMENTS - FLUE-CURED TOBACCO

(2) Rented In - In addition to owning quota, farmers also rent quota and land and generally grow tobacco on the farm to which the quota is assigned. The quota must be grown on the farm to which it is assigned unless reconstitution provisions are met. Reconstitution refers to a process whereby quotas can be consolidated into single operating units. When entire farms are rented and combined with other farms into single operating units, the quota assigned to all the farms that constitute the farming unit can generally be grown anywhere within the operating unit. Owners of rented land must agree in writing to the reconstitution and extend the rental agreement for more than one year. If quota is obtained via reconstitution, be sure to record it as rented quota. Separate and record the pounds of quota rented in on a cash basis (cell 758) and on a share basis (cell 759).

(3) Rented Out - Record the pounds of quota rented to someone else for cash or share rent.

(4) Total Effective Flue-Cured Tobacco Quota- This is the sum of (1) + (2) minus (3). It represents the total effective quota available to the farm operator for the 1987 flue-cured tobacco crop. After the additions and subtractions are made, verify the entry with the farmer and if it does not agree determine the adjustment(s) needed.

Item 4 If any of the owned poundage reported in item 3a, question(1) was purchased in 1987, enter the total number of pounds purchased.

SECTION Q1 - EFFECTIVE QUOTA AND RENTAL ARRANGEMENTS - FLUE-CURED TOBACCO

Item 4a

For any purchased poundage recorded in item 4 above, record the average cost per pound paid. For example, if the operator purchased 2,000 pounds @ $1.50 per pound and another 2,500 pounds @ $2.00 per pound, the weighted average cost would be determined as follows:

Pounds purchased	x	Price per pound	=	Total cost
2,000	x	$1.50	=	$3,000
2,500	x	$2.00	=	$5,000
4,500				$8,000

$8,000 divided by 4,500 pounds equals $1.78 per pound.

$1.78 would be recorded in cell 763 as 1.78.

However, if this procedure becomes too complex, record the cost of the greatest amount that can be separated out.

Item 5

If item 3a, question (2), cell 758 is positive, then record the amount paid per pound for quota and land cash rented. If there is more one cash rental agreement, the weighted average cost would be determined as follows:

Pounds rented	x	Price per pound	=	Total cost
2,100	x	$.50	=	$1,050
1,800	x	$.40	=	$ 720
3,900				$1,770

$1,770 divided by 3,900 pounds equals $.45 per pound.

$.45 would be recorded in cell 764 as $.45.

However, if this procedure becomes too complex, record the cost of the greatest amount that can be separated out.

effective quota and rental arrangements — tobacco - continued

Q1

[If share rented positive]
Now I would like some information about tobacco production on the **share** rented acres.
[If more than one share rent arrangement] Let's take the rental agreement with the **largest** tobacco acreage.

6a. How many acres under this agreement were planted to tobacco in 1987?.....acres — 411 •__

6b. What was the LANDLORD'S percentage share of the tobacco?.....percent — 412

6c. What was the landlord's share of any expenses for— — % —

(1) fertilizer, lime and soil conditioners? ..... — 413

(2) pesticides? ..... — 414

(3) labor? ..... — 765

(4) fuel for IRRIGATION? ..... — 766

(5) fuel for CURING? ..... — 767

SECTION Q1 - EFFECTIVE QUOTA AND RENTAL ARRANGEMENTS - FLUE-CURED TOBACCO

Item 6 — If share rented pounds were reported in Item 3, question (2), cell 759, then you must complete Items 6a, 6b, and 6c. If no share rented pounds were reported in Item 3, then skip to Section Q2. If the operator was involved in more than one type of share rental arrangement of flue-cured tobacco, then record information in Items 6a through 6c for that arrangement involving the largest poundage.

Item 6a — Enter the acres of tobacco planted under a share rental agreement. If more than one agreement, list the largest tobacco acreage.

Item 6b — Enter the percentage of the 1987 flue-cured tobacco crop receipts for the quota and land share rented, that were paid to the landlord.

Item 6c — Record the percentage of the expenses for the prelisted items that were paid by the landlord under the share rental arrangement.

Q2 TOBACCO PLANT BEDS Q2

How many square yards of plant **beds** were there in 1987? ..... sq yd | 768

What was the **total** cost of—
[include landlord expenses]

— $ —

2a. seed? ..... | 769

2b. fertilizer? ..... | 770

2c. fumigants, plastic covers and canvas? ..... | 771

2d. pesticides and fungicides? ..... | 772

Did this operation purchase any plants in 1987?

☐ YES - 3a. What was the total cost? ..... | 773

☐ NO

SECTION Q2 - TOBACCO PLANT BEDS - FLUE-CURED TOBACCO

Purpose — To obtain cost information for all materials used on plant beds seeded to grow plants for the operator's flue-cured tobacco acreage. Include any materials paid for by a landlord. Exclude any plant beds exclusively to grow plants for sale.

Item 1 — Plant Beds - Record in cell 768 the total square yards of the plant bed(s) seeded for use on the operator's 1987 flue-cured tobacco crop.

Item 2 — Cost of Plant Bed Materials - Record the total cost of the listed materials used by the operation in preparing the plant beds for the 1987 crop:

Seed - This refers only to flue-cured tobacco seed used for the 1987 crop.

Fertilizer - This refers to any application of nitrogen, phosphorus, potash, or trace elements on the plant bed.

Fumigants - The plant bed fumigant, which is often termed plant bed sterilizer, can be defined as any substance or substances used to prevent or control grass and weeds in tobacco plant beds. The most common tobacco bed fumigant or sterilizer is methyl bromide gas.

Plastic Covers and Canvas - Include any plant bed covers. Covers are used to seal in the fumigant and protect seedlings. Include plastic covers/canvas purchased and used for the 1987 flue-cured tobacco crop. Include reemay, and other materials used to cover plant beds. Do not include covers used which were purchased for use in earlier years.

Pesticides - Includes herbicides (a substance or mixture of substances intended to destroy weeds) and insecticides (a substance or mixture of substances intended to prevent, destroy, or repel insects such as flea beetles).

Fungicides - A substance or mixture of substances intended to kill, inhibit, or eradicate fungi growth. Commonly used plant bed fungicides are Ferbam and Zineb.

SECTION Q2 - TOBACCO PLANT BEDS - FLUE-CURED TOBACCO

Item 3 — Plants Purchased - Record the total cost of tobacco plants purchased by the operation for the 1987 crop. If all plants were home grown or obtained from neighbors at no cost, no entry is required.

T FERTILIZER — TOBACCO T

1. What fertilizer was used on the entire flue-cured tobacco crop? (Include all materials applied in the fall of 1986 for the 1987 crop, all primary nutrient materials and all materials paid for by the landlord.) *[Enter analysis or actual pounds in column 1.]*

(1) MATERIALS USED N	P_2O_5	K_2O	(2) How much was used per acre per application? 1/	(3) What was the unit *[enter code Lbs = 4 Actual Ing. = 2 Gal. = 1]*	(4) How many acres was this applied to? 2/ *[to nearest tenth]*	(5) Was it CUSTOM APPLIED? *[If YES, enter cost of application only 3/]* dollars & cents per acre
527	528	529	530	531	532 . _	533 _ . _ _
534	535	536	537	538	539 . _	540 _ . _ _
541	542	543	544	545	546 . _	547 _ . _ _
548	549	550	551	552	553 . _	554 _ . _ _
TONS OF LIME			555		556 . _	557 _ . _ _
TONS OF GYPSUM (LANDPLASTER)			558		559 . _	560 _ . _ _
MICRO NUTRIENTS		Code	562	563	564	
[Specify]		561			. _	
[Specify]		565	566	567	568 . _	

1/ *[If actual pounds of nutrients are reported in column 1, leave column 2 blank and enter code 2 in column 3 for actual ingredients.]*

2/ *[Total acres times the number of applications.]*

3/ *[Enter application costs only in column 5. If the application costs and material costs cannot be separated, leave blank.]*

Codes for Micro-Nutr.	
Boron	*= 1*
Calcium	*= 2*
Copper	*= 3*
Iron	*= 4*
Magnesium	*= 5*
Manganese	*= 6*
Molybdenum	*= 7*
Zinc	*= 8*
Sulphur	*= 9*

2. What was the total cost of PESTICIDES? *[Include materials and application costs of all insecticides, herbicides, fungicides and all growth regulators for the 1987 flue-cured tobacco IN THE FIELD]* .....dollars 774

SECTION T - FERTILIZER

Purpose

To obtain data on the quantities of fertilizer elements used on this operation's flue-cured tobacco in the field and data on custom application rates.

Include any costs for fertilizer paid for, in part, or in full by the landlord.

Column 1

The first four lines are to record the use of major fertilizer nutrients which are:

Nitrogen N

Available Phosphorus (P205)

Water soluble potash (K20)

These nutrients can be applied to a crop by several different methods, including:

(1) broadcast spreading of dry material;

(2) through an attachment to a drill or planter (this is usually dry material but liquid fertilizer can also be applied this way);

(3) through dripping liquid fertilizer material into the irrigation system;

(4) aerial application (found mainly on rice, but possible on other crops);

(5) and through chemical sprayer systems where small amounts of fertilizer are sprayed on the foliage of a plant and absorbed through the leaves. For example, this is frequently done in cotton production and is called "foliar application."

SECTION T - FERTILIZER

Fertilizer can also be applied as plow-down prior to planting, at planting time, or as "side dressing" or foliar application throughout the growing season.

All of the fertilizer applied by these methods is to be included in this section.

Record in this section the quantities of nutrients applied per acre to flue-cured tobacco. Use of these three nutrients can be reported in two ways: either (1) by analysis in percent of the material applied, or (2) in pounds of actual ingredients.

The common method of reporting this type of fertilizer will be by analysis, i.e. 16-20-6. When fertilizer is bought by the bag, the analysis will be printed on the front. In the first line of the example, in this section, is an illustration of this method. When the analysis is given, the first number is the percent of nitrogen, the second is the percent of phosphorous and the third is the percent of potash.

There are hundreds of different analyses of fertilizer. With mixing equipment now available, a producer can get almost any mix of fertilizer ingredients desired.

Some fertilizers contain only one nutrient, such as 0-45-0, which is 45 percent phosphorus with no nitrogen or potash. Another common fertilizer is 33-0-0, which is 33 percent nitrogen only.

SECTION T - FERTILIZER

The sum of the three analyses cannot exceed 85. Chemists cannot make fertilizer without at least 15 percent other ingredients as carriers. If a producer reports something like 35-45-20, he must be reporting pounds actual ingredients instead of analysis since the three percentages add up to 100 percent. **Just remember, the sum of the three percentages cannot exceed 85.**

A producer may say he applied 10-10-16-2. The fourth item is the percentage or pounds of a trace element which should be listed below under "other material."

The other common method of reporting fertilizer is in pounds of actual or active ingredients. In line 2 of the example, the producer reported 50 pounds of actual nitrogen, no phosphorous and no potash. In this case, he applied it to only 100 acres of flue-cured tobacco. When a farmer reports application in pounds of actual ingredients, probe as to what type of fertilizer he applied. Some farmers are also confused on this item. He may have applied 50 pounds per acre of 0-0-33 which is only potash and would be only 16.5 pounds of actual potash. However, if he confirms that it was 50 pounds of actual potash, then you would record it as in line 2 of our example. In this case, leave column 2 blank and record a "3" in column 2.

Farmers may also report fertilizer by name. The following are some more common fertilizers with the usual analysis.

SECTION T - FERTILIZER

NAME	PERCENTAGE ACTIVE INGREDIENTS		
	N	P	K
Anhydrous ammonia	82	--	--
Aqua ammonia	20	--	--
Ammonium nitrate	33	--	--
Ammonium sulfate	20	--	--
Sodium nitrate	16	--	--
Urea	45	--	--
Super phosphate (22% & under)	--	19	--
Super phosphate (over 22%)	--	45	--
Ammonium phosphate	16	27	--
Diammonium phosphate	18	46	--
Monammonium phosphate	11	48	--
Potassium chloride	--	--	60
Potassium nitrate	13	--	44
Potassium sodium nitrate	15	--	14
Potassium sulfate	--	--	49

Anhydrous ammonia is the strongest nitrogen fertilizer available. It is a gas that must be kept under pressure (in a tank) and is injected into the ground. (It is a liquid when under pressure, but turns into a gas when released and will be lost if not injected into the soil). It is a very popular form of fertilizer because it is often cheaper than other forms. It can be reported to you as "anhydrous", as "82-0-0", or in "units of nitrogen" or as "pounds of active ingredients". Line 3, shows the use of 100 pounds per acre of anhydrous ammonia.

Aqua ammonia is one of the more common types of liquid nitrogen fertilizers. It is made up of anhydrous ammonia and water and is often found in western states. It may be reported in pounds or gallons. Although it is a liquid, it is usually reported in pounds of active ingredients.

SECTION T - FERTILIZER

Fertilizers applied through an irrigation system will often be reported in pounds or "units" of actual ingredients which can be recorded as on line 2.

Urea is also a commonly used nitrogen fertilizer because of its high analysis. It may be added through an irrigation system, usually as a nitrogen solution.

With many of the other named fertilizers the analysis may vary. Probe to determine if the farmer knows the analysis or pounds of actual ingredients applied. If he does not know the analysis, only the name, use the analysis given here, rounded to the nearest pound.

Report the amounts applied per application in columns 1 and 2. When column 1 reports active ingredients, leave column 2 blank. Multiple applications will be reflected in column 4, where total acres equals the number of acres times the number of applications.

Lime

Lime is usually applied broadcast as a dry material but wet limes are also available. The rates of application will be in tons per acre. It is used to reduce soil acidity. Use of lime will be concentrated in areas east of the Plains States. Very little is used in the West.

Gypsum (Landplaster)

Gypsum, or calcium sulfate, is used mainly by peanut growers. It's used to loosen heavy clay soil, and more importantly to supply calcium. It is usually applied in tons.

Micro-Nutrients

A producer may say he applied 10-16-16-2. The fourth item is a trace element or micro-nutrient. Materials which may be listed in this section include trace fertilizer elements such as iron, boron, magnesium, etc. Record the name of the material, code column 1 according to the codes shown and record the quantity used per acre.

SECTION T - FERTILIZER

Many different trace elements may be used. These can be used on any crop and more likely on irrigated fields. The quantities applied are usually small, sometimes only one pound or less per acre.

Column 4

For all materials reported, we need to record the acres (to nearest tenth) to which this material was applied. It may have been applied to all the acres or only a portion of the acres. If a fertilizer was applied to the same acreage more than once, add the acreage for each application. <u>However, remember that the type of fertilizer and the application rate must be the same to allow acres to be added together</u>.

Many fertilizer companies (and private consultants) conduct field soil tests and may recommend slightly different fertilizer applications for each field, based on the soil analysis. The farmer may have a set of receipts showing quantities and timing of fertilizer applications separately but obtain the farmer's best estimate of the average composition of fertilizer, and adjust the acreage to reflect the number of applications.

In line 1 of the example, the operator reported using 75 pounds per acre of 16-20-6 on 200 acres, but he applied it twice to 50 acres at the same rate, hence we recorded a "250" in column 4.

Column 5

For materials containing N, P, and K and lime and gypsum, record the cost of custom <u>application</u> only in column 5. Data on the cost of these materials is not needed. These prices will be obtained from NASS' "Agricultural Prices" release. If the material is applied by the operator, column 5 should be left blank.

SECTION T - FERTILIZER

****

Note: When a material is custom applied, this operation should be excluded from Section X (Field Operation), page 32. When a material is applied by the operator, this operation should be included in Section X.

****

Also leave column 5 blank if the material was custom applied but the operator cannot divide the cost between materials and application costs.

If trace minerals are applied, they are generally mixed with the N, P and K fertilizer and are not applied separately. Do not double count any application costs already reported for N, P or K.

U PESTICIDES — TOBACCO U

1. How many acres of tobacco IN THE FIELD were treated with—*[exclude seed treatments]*

	— acres —
1a. herbicides?	423 • __
1b. insecticides?	424 • __
1c. fungicides?	425 • __
1d. nematicides *[fumigant or granular]*?	426 • __
1e. growth regulators?	427 • __

2. *[if all 1a-1e none, go to 4, else, ask for products used in chronological order. If 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

3a. Was it applied before (code = 1), during (= 2) or after (= 3) planting? *[enter code]*	3b. What was applied? *[use codes on next page]*	3c. Was it custom applied? *[enter code]*	3d. How many TOTAL acres were treated? 1/	3e. How was it applied? *[broadcast-ground = 1, broadcast-air = 2, in-furrow = 3, band in/over row = 4, directed spray = 5, irrigation water = 6, spot treatment = 7]*
428	429	430	431	432	433 • __	434
435	436	437	438	439	440 • __	441
442	443	444	445	446	447 • __	448
449	450	451	452	453	454 • __	455
456	457	458	459	460	461 • __	462
463	464	465	466	467	468 • __	469

1/ Total acres times the number of applications.

4. How many acres of flue-cured tobacco received no pesticide treatment in 1987? — acres — 518 • __

5. Were any pesticides used on the plant BEDS?

☐ YES ☐ NO - *[go to V]*

6. *[if 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

6a. What was applied? *[use codes from next page]*	6b. Was it custom applied? *[enter code]*
775	776	777	778
779	780	781	782
783	784	785	786
787	788	789	790
791	792	793	794

SECTION U - PESTICIDES

General

Herbicide products are applied to the plant bed and in the field. Field applications usually occur before the tobacco is transplanted. Insecticides are also applied to both the field and the plant bed. Field insecticide applications occur before, during, and after transplanting, depending on the type of insect being controlled. Fungicides are also used on both plant beds and in the field. Nematicides (fumigant or granular) are applied to the bed or in the field before the tobacco is transplanted. Growth regulators are applied to prevent sucker growth after the tobacco is topped.

DEFINITIONS

Herbicide - a chemical agent used to destroy or inhibit weed growth.

Insecticide - a chemical agent used to destroy insects.

Fungicide - a chemical agent used to prevent disease outbreaks or kill plant pathogens.

Nematicide - a chemical agent used to control root-infesting nematioces--microscopic worm-like organisms.

Growth regular - a chemical agent that affects plant development.

Items 1a through 1e

Record the number of acres to which herbicides, insecticides, fungicides, nematicides, or growth regulators were applied.

Item 2

This screens to determine if no herbicides, insecticides, fungicides, nematicides, or growth regulators were applied. If so, go to item 4.

SECTION U - PESTICIDES

Item 3a

Herbicide products can be applied before, during or after planting. Insecticide products are generally applied during or after planting. Fungicide products are applied to the plant foliage to prevent disease outbreaks. Nematicides may be applied as liquid fumigants or granular materials. They are generally applied before or at planting. Growth regulators are applied to the Tobacco plant to control suckers. ASK the respondent to start with before-planting treatments then go through the sequence ending with after-planting treatments.

Before Planting

The herbicide or insecticide product is applied to the field before the flue-cured tobacco is planted. This may occur the same day or week or several months before planting. If a tillage implement is used to incorporate the herbicide or insecticide into the soil, be sure to record it in the field operations section (Section X). Liquid fumigants are applied 3 weeks prior to planting by injecting the material 6 to 8 inches below the soil surface. Contact nematicides (non-fumigant) are broadcast at least 5 days before planting and incorporated to a depth of 3 to 6 inches.

During Planting

The KEY is that the herbicide or insecticide is applied to the field during the planting operation. This may be accomplished with spray tanks mounted on the side or rear of the tractor. Insecticides may be placed in the transplant water (seed furrow).

SECTION U - PESTICIDES

After Planting

The herbicide or insecticide material is applied after the planting operation is completed. They could be applied a few days or several weeks later. Herbicide materials applied after planting but before weeds emerge kill the seedling as it germinates. Herbicides applied after the weeds have emerged are applied to the foliage and the plant is killed by translocation. Insecticide materials are applied to control foliage feeding insects such as budworms, hornworms, and lappers. Fungicides are applied at first occurrence of disease and treatments may be made on a regular intervals throughout the growing season.

Item 3b

Most of the herbicide and insecticide products used in flue-cured tobacco production are listed in Section U, page 30. If the respondent indicates a product not listed, record under OTHER and specify the products trade name. This will enable later identification of the product. The product code or codes are to be recorded in columns 2, 3, and 4.

Most herbicide and insecticide applications used in flue-cured tobacco production are applied to the field as single products, HOWEVER, 2 or more individual products may be mixed in the spray tank and applied to the field.

TANK-MIXES -- on the same line record the product code for each separate material mixed in the spray tank. If the tank-mix of Tillam + Devlinol was the first application made to this field you would record on line 1 -- code 102 in column 2 and code 105 in column 3.

Item 3c

Code a YES=1 or a NO = 2 if the product was custom applied.

SECTION U - PESTICIDES

Item 3d

Record the TOTAL acres treated with the product or tank-mix. If the same pesticide product is applied to a field more than once, multiply the acres treated by the times applied and record the TOTAL acres in 3d (col. 6). For example, if Azodrin was applied 2 times to 5 acres, record 10 acres in 3d (col 6.).

Item 3e

Pesticide materials can be applied as broadcast treatments using either ground equipment or an aircraft, in-furrow with Transplant water, banded in\over the row, or as directed sprays at the base of the plant. Some farmers may apply materials through the irrigation system.

BROADCAST treatments are when the entire surface area of the field is sprayed with pesticide product. Broadcast application is the most widely used method for applying herbicide, insecticide and fungicide products used in flue-cured tobacco production.

BANDED treatments are when only the area over the crop row is sprayed with the herbicide or insecticide material. The area between the flue-cured tobacco rows is not treated. At planting or before emergence of weeds or flue-cured tobacco, herbicide applications are made by spraying the product a 10 - 13 inch band over the flue-cured tobacco row. When banded herbicide treatments are used, weed control in the row middles is accomplished with mechanical cultivation.

SECTION U - PESTICIDES

IN-FURROW transplant water treatments are infrequent but are sometimes used for insecticides applications.

SPOT treatments are when the pesticide is only applied to a portion of the field. Spot herbicide applications are generally made to control problem weeds, while spot insecticide applications are sometimes made to control insects around in the edges of the field.

Item 4 Record the total acres of flue-cured tobacco which received no pesticide treatments in 1987.

U pesticides — tobacco — continued U

HERBICIDES

Balan 101
Devrinol 102
Enide 103
Paarlan 104
Prowl 105
Surflan 106
Tillam 107
Other 199
[specify] _____

_____

_____

INSECTICIDES/NEMATICIDES

Azodrin 201
Dasanit 202
Di-Syston 203
Furadan 204
Lorsban 205
Mocap 206
Nemacur 207
Nudrin, Lannate 208
Orthene 209
Parathion 210
Penncap-M 211
Other 212
[specify] _____

_____

_____

FUNGICIDES

Manzate, Dithane,
Maneb 301
Ridomil 302
Other 399
[specify] _____

_____

_____

FUMIGANTS

Chloro-pic, Triclor 401
Methyl Bromide 402
Telone C-17 403
Other 499
[specify] _____

_____

_____

GROWTH REGULATORS

Off-shoot T, Fair 85,
Sucker Plucker 501
Prime + ...502
Royal MH-30 503
Other 599
[specify] _____

_____

_____

— 31 —

V TRACTORS — TOBACCO V

1. Now I would like to list the make and model of all the tractors used on the flue-cured tobacco crop.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors provided by custom operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					— *[if OWNED]* —		
LINE NO.	*[enter make and model]*	**WHAT WAS IT'S—** Drive? *[enter code 2WD =2 4WD =4 Craw =5 4W ASST =6]*	PTO HP?	Fuel type? *[enter code]*	How many total hours was it used for all uses?	Was it bought since JAN. 1, 1981? *[if YES ——————]* When was it bought?	What did it cost?
1	Int 4366	569 4	570 195	571 3	572 1000	573 83	574 50 000
2	JD 4050	575 2	576 100	577 3	578 600	579 84	580 41500
3	JD 4020	581 2	582 95	583 3	584 1000	585 — —	586 —
4		587	588	589	590	591 — —	592
5		593	594	595	596	597 — —	598
6		599	600	601	602	603 — —	604

SECTION V - TRACTORS

Purpose The purpose of this section is to inventory all tractors used for the production of flue-cured tobacco on this operation in 1987.

Item 1 Include tractors that were owned, rented, leased, or borrowed. Tractors owned in partnership should also be included. Exclude tractors used exclusively for custom work.

Column 1 The pre-printed line number will be used to identify tractors used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 List the make and model for each tractor, such as John Deere 4250. It is important that you get both accurately as the horsepower may need to be verified in the State office based on the make and model. If more than 6 tractors were used, record these tractors at the bottom of the page.

Column 3 Enter the code for the type of drive for the tractor lists in column 2.

Type of drive:

2=2WD - Two wheel drive - conventional rear wheel drive.
4=4WD - Four wheel drive - power is transmitted to all four wheels, full-time.
5=CRAW-Crawler - track-type tractor.
6=4W ASST - Front wheel drive option or front wheel assisted. Power can be shifted to the front wheels for four wheel drive as needed.

Column 4 Record the horsepower (PTO) rating. If the operator does not know the rating, obtain his best estimate.

Column 5 Enter the code for the type of fuel used.

Gasoline = 2
Diesel = 3
LP gas = 5

SECTION V - TRACTORS

Column 6	Record the operator's best estimate of the total hours the tractor was used in 1987 for all purposes. Leave blank if the tractor was leased, rented or borrowed.
Columns 7 and 8	If any of the tractors listed in column 8 were purchased, new or used, by the operator since January 1, 1981 record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

W TRUCKS — TOBACCO W

1. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for tobacco.]* 503

1a. What was the average number of miles driven per pick-up for **farm use only?**.....miles 504

2. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for the production of flue-cured tobacco.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom operators.)

TRUCKS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[if OWNED]*		*— [if OWNED] —*	
LINE NO.	*[enter make]*	Fuel type? *[enter code]*	Size? *[enter code single axle =1 tandem axle =2 semi =3]*	What were the total miles driven for **FARM USE?**	What percent was for tobacco?	Was it bought since JAN. 1, 1981? *[if YES —————]* When was it bought?	What did it cost?
7	GMC	605 2	606 1	607 4000	608 50%	609 82	610 5000
8	White	611 3	612 3	613 7500	614 100%	615 — —	616 —
9		617	618	619	620 %	621 — —	622
10		623	624	625	626 %	627 — —	628
11		629	630	631	632 %	633 — —	634
12		635	636	637	638 %	639 — —	640

SECTION W - TRUCKS

Purpose — The purpose of this section is to inventory all trucks used for the production of the flue-cured tobacco on this operation in 1987.

Item 1 — Record the number of pick-up trucks that were owned, leased, rented or borrowed.

Exclude pick-ups used by custom operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

Item 1a — Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 2 — Include trucks that were owned, rented or borrowed. Trucks owned in partnership should also be included. Exclude trucks used by custom operators who supplied their own trucks or trucks owned by the operator and used exclusively for custom work. Exclude pick-ups.

Column 1 — The pre-printed line number will be used to identify trucks used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 — Enter the make of each truck to ensure that all trucks used during 1987 for the production of flue-cured tobacco are included. For ease of enumeration, you may wish to progress from smallest to largest.

Column 3 — Enter the code for the type of fuel used.

Gasoline = 2 Diesel = 3 LP Gas = 5

Column 4 — Enter the size code for each truck.

Single axle = 1
Tandem axle = 2
Semi = 3

SECTION W - TRUCKS

Column 5	Record the operator's best estimate of the total number of miles driven in 1987 for farm related purposes for each truck listed. If the truck was rented or borrowed, then leave this column blank.
Column 6	Record the operator's best estimate of the percentage of miles driven in column 4 used for the production of flue-cured tobacco.
Column 7 and 8	If any of the trucks listed in the column 2 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

X PLANT BED AND FIELD OPERATIONS — TOBACCO X

1. Please describe field work performed, by machine only, on tobacco. For PLANT BEDS, begin with the first activity in preparation for fumigation up to transplanting for the 1987 crop. for FIELD OPERATIONS, begin with the first activity after harvest of the preceding crop. (Include all field operations. Include chemical and fertilizer applications self applied. Exclude all custom operations.) First I would like to start with the PLANT BEDS.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[enter field operation or equipment used]	*[enter machine code if used]*	What size was it?	*[enter unit] 1/*	*[enter line no. of tractor or truck used] 2/*	How many (sq. yds. or acres) were covered? *3/*	*[if OWNED* Was it bought since JAN. 1, 1981? NO-*[list next operation.]* YES-*[continue.]* When was it bought?	What did it cost?
PLANT BEDS****					-sq. yds.-		
plow	641 5	642 2	643 2	644 3	645 2000	646 —	647 —
disk	648 16	649 16	650 1	651 3	652 6000	653 —	654 —
fert	655 71	656 3	657 1	658 3	659 2000	660 82	661 250
spray	662 99	663 12	664 2	665 99	666 2000	667 —	668 —
	669	670	671	672	673	674	675
FIELD****					-acres-		
disk	676 16	677 18	678 1	679 3	680 45.5	681 —	682 —
plow	683 5	684 2	685 2	686 3	687 45.5	688 —	689 —
chem. appl.	690 20	691 16	692 1	693 2	694 45.5	695 84	696 5300
fert. appl.	697 71	698 —	699 —	700 893	701 —	702	703
transplant	704 210	705 4	706 2	707 2	708 45.5	709	710
spray	711 99	712 12	713 2	714 99	715 91.0	716	717
cultivate	718 23	719 4	720 2	721 1	722 91.0	723 82	724 1500
harvest	725 202	726 2	727 2	728 2	729 45.5	730	731
primingaid	732 206	733 4	734 2	735 2	736 45.5	737	738
trailer	739 209	740 16	741 1	742 7	743 45.5	744	745

1/ [Feet = 1, Row = 2, Moldboard = 3.]
2/ [For horse or mule drawn, enter 77; for self-propelled enter 99.]
3/ [Record total acres for all times covered, i.e., disked 100 acres 3 times = 300 acres covered.]

Supplements
009

CHAPTER 9 - FLUE-CURED TOBACCO

SECTION X - PLANT BED AND FIELD OPERATIONS

Purpose

To list all machine operations performed on the operator's 1987 flue-cured tobacco crop. This section will establish what machinery and equipment was used by this operation on plant beds and in the fields for the production of flue-cured tobacco. If any of the flue-cured acreage was destroyed due to natural causes, all operations performed on the flue-cured tobacco until (and except) plowing under should be included.

Plant Beds

In this portion of the section, you will code the machinery and equipment used for all operations performed on the plant bed(s) for the 1987 crop. Begin with the first activity in preparation for fumigation (this may have happened Fall 1986) up to transplanting for the 1987 crop. This section should be completed by having the operator describe all of the plant bed operations performed.

A machine code sheet (SC-4) is provided for you to give to the respondent. The machine code sheet contains a listing of most machines used in plant bed operations. Let the respondent give you the codes of the machines he used. Operations commonly performed on the plant bed are plowing, disking, dragging, fertilizing, fumigating, etc. If you have gone down half or three-fourths of the plant bed section and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end of this section and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the square yards together as long as the size of the tractor and machine remain the same. If more than 5 field operations were performed on the plant bed(s), list the first 5 activities and disregard the rest since we have allowed space for only 5 plant bed field operations.

SECTION X - PLANT BED AND FIELD OPERATIONS

Field Operations

In this portion of the section, you will code the machinery and equipment used for all operations performed in the field for the 1987 crop. Begin with the first field operation performed after harvest of the preceding crop and continue through harvest of the 1987 flue-cured tobacco crop. This section should be completed by having the operator describe all of the field operations performed.

A machine code sheet (SC-4) is provided for you to give to the respondent. The machine code sheet contains a listing of most machines used in field operations. Let the respondent give you the codes of the machines he used. Include all field preparation operations, transplanting, spraying, cultivating, all harvest operations, etc. Exclude hauling tobacco to the barn. If you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine remain the same. The field operations section of the table has space for only 10 pieces of equipment. If more space is needed, use the worksheet (WS-7) provided. Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

Column 1

Record the operator's oral listing of the machines used such as plow, disk, transplanter, etc. for the plant bed(s) and then in the field. If any machine operation is reported for which a machine code is not available, be as descriptive as possible in the margin as to the machine used.

SECTION X - PLANT BED AND FIELD OPERATIONS

Column 2 — Using the machinery list provided, SC-4, enter the proper code for the machine. Since the operator has a copy of the machinery list, he may decide to find the codes for you. If two machines are pulled together (in tandem), list the first implement in column 2. The second or third tandem equipment requires additional lines and are discussed on the next page.

Columns 3 and 4 — Enter in column 3 the size of the equipment listed in column 1. Enter both the width of the area covered by the equipment on one pass over the field and the code specifying the unit of width. Size relates to the swath covered by the machine and not necessarily the structural width of the equipment. For instance, a broadcast fertilizer spreader may be only 6 feet wide, but it spreads fertilizer over a swath of 30-40 feet. In this case, 35 feet would be an appropriate entry.

Column 5 — Enter the line number of the truck or tractor from the previous sections used to pull the equipment. If the equipment were self-propelled, enter a "99". If two tractors were used simultaneously to pull one piece of equipment, write a note at the bottom of the page. If horses or mules were used to pull equipment, enter a "77".

Column 6 — Record the total square yards or acres covered for all times this machine was pulled by the truck or tractor listed in column 5. For example, if 90 square yards were disked 2 times, enter 180 square yards in column 6 or if 100 acres were disked 3 times, enter 300 acres in column 6.

For land forming equipment, column 6 should be left blank. These machines are used to make or close ditches (see machinery list SC-4) and the entire field acreage is not covered. All that needs to be recorded is which of these specific machines are used on the flue-cured tobacco plant bed(s) or field.

SECTION X - PLANT BED AND FIELD OPERATIONS

Columns 7 and 8

If any of the equipment listed in column 1 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

Questions recorded in this section with regard to fertilizer and chemical applications should agree with that reported earlier in Sections C, page 7, and U, page 28. For example, if a fertilizer was reported in section C as self-applied, then the operation of applying this fertilizer should appear here. If in section U a chemical was reported as custom applied, then the operation of applying this chemical should not appear here. It may help to finish this section by asking the operator what operations, if any, were missed.

Tandem Field Operations

In many cases a farmer will perform 2 or more field operations at the same time. For example, in the 1984 FCRS for rice, it was not uncommon to find a spike tooth harrow connected to a field cultivator, both pulled simultaneously by the same tractor. Fertilizer and chemical applicators are other examples of common tandem operations.

In this year's FCRS we are recording tandem operations the same as in 1986. The reason for this is that by asking equipment purchase prices (column 8), we need each separate item of equipment more fully identified.

Therefore, when the farmer reports a tandem field operation:

1. Record the first piece of equipment as you would any other piece.

2. On the next line, record the machinery code of the second piece of equipment (the tandem operation) in column 2. Skip columns 3 & 4.

SECTION X - PLANT BED AND FIELD OPERATIONS

3. In column 5 enter the cell number where the line number of the trucks or tractor pulling the pieces is recorded. This will tell us which trucks or tractor is providing the power. Skip column 6.

4. Enter the year purchased and purchase price, if applicable.

5. If a third, fourth, or more pieces are used in tandem, repeat 2, 3, and 4.

Be sure information and each column is obtained (including columns 7 and 8 if the equipment was purchased since January 1, 1981) for every piece of equipment used to grow the flue-cured tobacco.

In completing this section, it is recommended to start after harvest of the preceding crop and go through in order of the operations performed through to harvest of the tobacco. However, if you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine are the same.

The table has space for only 15 pieces of equipment (5 for plant bed and 10 for field operations). If more space is needed, use the worksheet (WS-7) provided (for field operations only).

Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

SECTION X - PLANT BED AND FIELD OPERATIONS

DESCRIPTION AND CODES OF FARM IMPLEMENTS

PLOWS

Chisel Plow (1)	A primary tillage machine either integral or trailing that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used ranging from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 10 inches.
Coulter-Plow (2)	A multi-purpose machine with one or two ranks of coulters, usually smooth or notched rim, followed by two or three ranks of chisel standards with a wide selection of ground engaging tools. The main purpose of the coulters is to cut through the crop residue in order to reduce plugging of the chisel standards. This is a primary tillage tool.
Subsoil Plow-Subsoil Chisel, V-Ripper (3)	A heavy tillage tool either toolbar mounted or trailing that has from one to 13 heavy shanks often with a parabolic curve. These shanks standards usually are fitted with replacement chisel points and can penetrate the soil up to 22 inches. The standards can be fitted with various auxiliary tools such as knives or lister bottoms. This allows the machine to deep-rib the soil and form beds at the same item.
Deep Ripper (4)	Similar to V-Ripper. For deep plowing.
Disk Plow (5)	A machine that does essentially the same work as the moldboard plow but has from one to ten large discs set at an angle to the direction of travel. The discs are mounted on individual beams or shanks. It is used in hard ground and where a regular moldboard plow does not scour well.

SECTION X - PLANT BED AND FIELD OPERATIONS

Plows (Continued)

Moldboard Plows (6 & 7)	A machine with one or more (up to 18) curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble. Moldboard plows may be made with one set of moldboards or with two sets. The two-way plows have two sets of moldboards, one left-handed and the other right. This allows the plow to be rotated so that all of the soil can be turned in the same direction. This eliminates dead furrows etc. This plow is especially used in irrigated areas to help maintain the level and slope of a field for furrow or bench irrigated.
Stubble-Mulch Plows (8)	Usually a tool bar or trailing machine with one or more standards that can be fitted with sweeps of various angles of penetration and several widths. Does not turn the soil over. Slightly mixes soil and stubble. (Noble blade).
Disk-Chisels (10)	A multi-purpose machine essentially a single disk followed by two or more ranks of chisel shanks.
Offset Disk Light-or-Heavy Duty (11 & 12)	A simple offset disk is the equivalent of one side of a tandem. All discs in each rank throw the soil in the same direction. Offset disks may vary in size from five feet to 35 feet or larger. The larger offsets have several disc units in each rank in order to gain flexibility. Types of disc blades may be cone or spherical and have diameters as large as 30 inches for extra heavy duty conditions. Offsets have several disc units in each rank in order to gain flexibility. Type of disc blades may be one or spherical and have diameters as large as 30 inches for extra heavy duty conditions.

SECTION X - PLANT BED AND FIELD OPERATIONS

Plows (Continued)

One-way (Disk-Tiller) (13)	A machine used mainly in the plains and Northwestern areas as a primary tillage tool. It mainly consists of a series of spherical disc blades, 20-60 inches in diameter, set on a single solid shaft. This machine throws the soil all in one direction. Sizes range from ten to twenty feet with multiple hitches available. One-ways have been replaced to some extent by chisel plows in many areas.
Single Disk (14)	Two sets of disc blades that throw the soil out from the center when angled. Size may vary from five to 40 or more feet. Used primarily as a secondary tillage tool. Most single disks have been replaced by tandems, offset or chisel plows.

DISKS (DISK - HARROW)

Tandem-Disk (Regular, Plowing or Heavy Duty) (15 & 16)	Two gangs of disc blades hitched in tandem; the front set throws the soil outward and the rear set throws it inward - width of cut may vary from 5 feet up to 35 or more feet. The blades may have different spacing between blades. 7, 9, and 11 inches are most common. The diameter of each blade may vary from 16 to as much as 24 inches. The shape of each blade may be either cone or spherical in shape. The cone blades are mainly for use in heavy soil conditions for primary tillage. These machines may be integral, 3 point hitch mount, trailing, double tandem or other configurations.

CULTIVATORS

Field Cultivator (20)	An implement similar to the chisel plow except of lighter construction and with the shanks closer together, about six inches overall. The shanks are usually of a spring steel, vibra-shank type. Ground engaging tools may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

SECTION X - PLANT BED AND FIELD OPERATIONS

Furrow-out Cultivator (21)	A row cultivator of the shovel variety where a fairly large shovel is placed to operate between the rows and open a furrow for irrigation. Thus, weeds are cultivated out and irrigation ditches are formed in one pass.
Rotary Hoe (22)	A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap. Rotary hoes are usually pulled at speeds of 6 mph and above and may be hitched to cover up to 50 feet or more.
Row Cultivator (Shank, Rolling, Lister, Disk) (23 & 24)	An implement with shanks arranged in such a manner that rows of crops can pass through without damage while the weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from one to twenty-four rows. Most are rear tool-bar or front mounted on tractors.
Field Conditioner, Seed Bed Conditioner, Soil Conditioner, Scratcher (30)	A lightweight wheeled tillage tool, usually two or three bars or ranks of spring steel teeth spaced 12-18 inches apart on the bars. Tine-tooth attachment available 30-60 feet wide.
Finishing Harrow (31)	Spiral cutting blade reels followed by spike teeth or field cultivator shanks, (2 or more ranks) possibly another rank of spiral knives and a smoothing board of wood or steel.

SECTION X - PLANT BED AND FIELD OPERATIONS

Flex-Tine Tooth (Coil Tine) (32 & 33)	Usually 5.5 to 6 foot sections of five bars or ranks. Teeth are spring steel about 5/16" in diameter and usually about 10 inches long. Teeth are formed in a spring coil and bolted to the bar, or set in rubber and bolted to the bar. Usually 50 teeth for 6 foot sections. At field speed, 3 1/2-5 mph, the tines vibrate in a circular motion to break clods, smooth seedbeds and kill weeds. Can be hitched up to 10 sections in one unit.
Rail, Pipe, Plank, Etc. (34)	Makeshift device used alone or in tandem with another implement to smooth soil or crunch clods.
Rod Weeder (35)	A steel rod usually square, 7/8 or 1 inch diameter-rotating in bearings on shanks. Rotation of rod is in reverse direction. Power for rod rotation is either from the drive wheels on the machine or hydraulic from the tractor. Some makes have a free-wheeling rod. Sections are normally 10 ft. wide but can be found to make-up units to 80 ft. Used in summer fallow areas and on relatively rock-free ground.
Roller Harrow (36)	Two ranks of packer rollers (smooth "vee" toothed "vee", crow foot, sprocket, birdfoot, or serrated type). Two or more ranks of chisel type teeth in between. Packer roller wheels turn independently of each other. 10-16 feet in size.

HARROWS

Spike Tooth (37)	Usually 5-6 foot sections of five bars or ranks with 7-8 steel spikes or teeth per bar. Angle of spikes is adjustable. Can be hitched up to 8 or 10 sections in one unit.

SECTION X - PLANT BED AND FIELD OPERATIONS

Spring Tooth Harrow (38)	Usually built in sections - 3-4 feet in width. Some wheeled models have a ten foot center section with wings to make up to a 57 foot machine. Teeth are spaced 12 inches on center on 3 bar models and 18 inches on 4 bar models. The teeth are spring steel and about 1 3/4 inches wide with a single or double curve. Points are replaceable on many models. The wheel-less, drag models have metal skids for transport and depth control.

BEDDERS

Disk or Lister Bedder (41)	An implement, usually 2 to 8 row used to make beds for seed planting using either disk blades or lister bottoms. Can be used with planters to plant either on the bed or in the furrow. Also used to break or "bust" the beds.
Bedder-Shaper (42)	A bedder with a forming device that flattens or shapes the bed in preparation for seeding. Shapers are sometimes used as a single toolbar implement. Planters may be attached.
Lister (Middle Buster or Breaker (43)	Same as bedder but lister (plow type) bottoms. Different types of bottoms available (hard land, general purpose, soft land and planter sweeps).
Rotovator-Bedder (44)	Same as disk or lister bedder except uses PTO powered knives to form beds.
Seed Bed Roller, Flat Roller (45)	Flat or concave rim wheel rollers. Used to pack soil in rows immediately before or after planting.

SECTION X - PLANT BED AND FIELD OPERATIONS

Subsoil-Bedder (Ripper-Hipper, Tiller, No-till Disk Bedder) (46)	Any type bedder either attached to a subsoil shank or as a separate bedder attached behind a subsoiler shank.

PACKERS

Culti-Packer (Pulverizer) (50)	An implement with a series of heavy crowfoot, inverted V-rim or serrated rim wheels running independently on a shaft. May be a single or tandem unit. Main uses of this implement are to firm the seed beds and reduce the size of clods and lumps of soil.
Plow Packer (51)	A packer designed to be pulled behind a moldboard plow with or with our a drill. Packer unit, may be spiral rod, crowfoot, inverted V, cogged or other.
Roller Packer (52)	Smooth roller or flat wheels on a shaft used to firm the seed bed and crush clods. May be home-made.

SECTION X - PLANT BED AND FIELD OPERATIONS

MISCELLANEOUS TILLAGE

Landall, Do-all (60)	A multi-tillage machine made up to 2 to 4 ranks of shovels, disks, coulters, blades or basket rollers.
Mulch-Treader, Picker-Treader (61)	Implement with tined wheels on a gang shaft that can be angled like a section of a tandem or single disk. Can be set up as a separate machine or as an attachment behind a stubble mulch plow. Tined wheels resemble rotary hoe wheels.
Roto-Tiller (62)	A series of bolo or slicer blades attached to a rotating shaft. Used as a primary or secondary tillage implement. Can be used in tandem with planting equipment as a minimum-till system. Mounted motor or PTO powered.
Roterra, Lely (63)	A machine with several sets of counter-rotating vertical tines that rotate with an overlapping action. The result is a stirring action; top soil remains on top, the soil is not turned over. Various attachments such as planters and sprayers are available. Tillage, planting, pesticide application and incorporation is possible in one trip.
Sand-fighter (64)	An implement used as an aid in controlling wind erosion. Essentially a shaft or bar with a frame and bearings to allow the shaft to rotate. Blades or teeth, about ten inches long and 2-3 inches wide, are welded to the shaft at intervals. The teeth enter the soil as the machine is pulled forward. This digging action roughens the soil and retards wind erosion. Sizes range up to 24 rows (72 ft).

SECTION X - PLANT BED AND FIELD OPERATIONS

FERTILIZER APPLICATORS, TRACTOR MOUNTED

Anhydrous (70)	Not very common. Supply tank tractor mounted with chisel shanks and injections on tool bar.
Dry (71)	(Includes lime and gypsum applicators) - Three point hitch mounted single or dual spinners with supply tank. Pneumatic - air delivery system through hoses to soil surface or below surface with hollow hoe shanks. The supply and distribution system is mounted on a tool bar. Drill Type- Drill type hopper with agitator and metering device to drop material on the surfaces of the soil.
Liquid (72)	Usually spray nozzles or injector units on a total bar. Tanks mounted on tractor.

FERTILIZER APPLICATORS, TRAILER MOUNTED

Anhydrous (73)	Usually a 2 or 4 wheel supply trailer feeding a chisel plow with injector tubes on each shanks. Can be high or low pressure type.
Dry (74)	(Includes lime and gypsum applicators) - Distributes the material by revolving spinner, pneumatic system through tubes to soil surface or below and the agitator metered bottom drop drill type.
Liquid (75)	Various configurations of two or four wheel trailers. Most use a boom with spray nozzles to surface or foliage apply the material. PTO or mounted engine powered.
Aerial, Fixed or Rotary Wing (76)	Airplanes or helicopters with fertilizer distribution attachments. Not too common.
Attachment to Implement (77)	Usually drop dry type attached to a drill or planter but may be liquid or gas type that is injected into the soil.

SECTION X PLANTED BED AND FIELD OPERATIONS

Manure Spreader (78)	Any type, apron with rear beater, flail or liquid spreader with pump spreader.
Self-Propelled (79)	A self-powered implement; may spread dry or liquid fertilizer, usually dry.
Truck Spreader (80)	Any method of application that is mounted on a truck. These usually are dry-broadcast type spreaders.

CHEMICAL APPLICATORS

Aerial (Fixed or Rotary Wing) (90)	An airplane or helicopter fitted with tanks and a spray boom to apply pesticides at very low altitudes.
Attachment to Implement (91)	Granular or liquid spray unit attached to a tillage, cultivator or seeding implement.
Large Self-Propelled or Truck (92)	Large converted truck or specially built machine to spray liquid or apply dry chemicals.
Motor Cycle Sprayer (93)	A small spray unit mounted on a 3-wheel motor vehicle. Spray with a boom, with hand held guns or wiper type. Mostly used for spot spraying.
Small Self-Propelled Sprayer (94)	Light weight self-propelled implement, (Spra-Cope) to be used on field crops such as wheat or barley.
Small Truck (Pick-up with Slide-in unit, Skid-in) (95)	Spraying mechanisms can be liquid boom, wiper, recirculating, micro-spray or dry spinner or tube delivery.

SECTION X - PLANT BED AND FIELD OPERATIONS

Tractor Mounted (96)	Supply tanks and spreading mechanism mounted on a tractor. Material may be spread by booms, recirculating sprayers, rope or wick wipers, row type nozzles or air blast. Facilitates spraying while cultivating.
Trailer Mounted (97)	Supply tanks and spreading mechanism mounted on a trailer pulled by tractor or other power vehicle. All types or spreading mechanisms.

DRILLS AND SEEDERS

Aerial Seeding (100)	Seeding by either fixed or rotary wing aircraft. Used some in rice areas and experimentally with other crops.
Broadcast Seeder (101)	Spinner type seeder, either tractor mounted (PTO or electric) or trailer mounted (wheel driven).
Drill-Air Delivery (102)	Same as conventional drill except seed is taken from a supply box through a manifold and blown by air through tubes to the seeding points.
Grain Drill (Hoe, Lister Shovel) (103)	Use lister bottoms, shovels, or hoes to prepare soil for seeds.
No-Till, Minimum-Till Drill, Zero- (Conventional) (104)	Usually fluted or ripped coulters that open up narrow prepared soil areas for the single or double disc drill shoes to deposit the seed in otherwise untilled soil. Herbicide attachments are available. Modified chisel plows with coulters also used.
Grain Drill (Disk) (105)	Seeder with seed box, metered seed feed through tubes to single or double disc openers. Tubes spaced 7", 9" or 10". May have fertilizer attachment.
Press Drill (106)	Drill with disks or lister bottoms with press wheels to firm soil around seed.

SECTION X - PLANT BED AND FIELD OPERATIONS

Lister Planter (111)	Planter mechanism either plate type or plateless, air or otherwise actuated. Seed is deposited in furrows made by lister bottoms either hard land or soft land type (may be equipped with fertilizer, insecticide, and/or herbicide attachments).
No-Till, Min-Till Planter (112)	Fluted coulters, rippled coulters and/or subsoil shanks used to open the untilled soil and prepare a narrow 2-4 inch tilled area for the planter units to deposit seeds. Usually used in conjunction with fertilizers, herbicides and insecticides.
Row Crop Planters, All Crops Planter, No Attachments (113 - 114)	Plate or plateless metering devices that drop seed through a boot or shank in a seed furrow or bed opened by a shoe or disc. Seed is covered by a press wheel. Planters may be trail type - wheel carried or tool bar mounted. Two to twenty-four rows.

SECTION X - PLANT BED AND FIELD OPERATIONS

HARVESTING EQUIPMENT

Combine, All Types (120 - 124 & 127 - 131)	An implement, self-propelled, PTO or mounted motor, that harvests crops either standing or in some cases picked up from windrows or swaths. The crop (grain) is separated from the straw, husks etc., straw, stalks, cobs and husks; cleaned and elevated into a holding tank for delivery into a truck, wagon or grain cart at intervals. Combines may be mounted motor or PTO driven; self-propelled with 2 wheels, 4 wheels or track drive. They can be set up for rice, corn, peanuts, beans, wheat and all small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups. They may be fitted as hillside, sidehill or level land machines. Special flue-cured tobacco and other row crop heads are available.
Windrower-Swather (125 - 126)	A machine, either self-propelled or PTO, that cuts the standing hay or ripened grain with a reciprocating sickle aided by a revolving reel of four or more bats or sails. The cut material is deposited on a platform, either draper or auger type. The auger or drapers move the cut material either to the end or the center of the platform where it is discharged into the ground in a "windrow" or "swath". The hay swather may have metal and/or rubber rollers through which the hay passes. This "conditions" or "crimps" the hay to facilitate more rapid and uniform curing.

SECTION X - PLANT BED AND FILED OPERATIONS

TOBACCO HARVESTING EQUIPMENT

Combine (1 row) (201)	A self-propelled or tractor drawn machine (1 row) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (2 row) (202)	A self-propelled or tractor drawn machine (2 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (4 row) (203)	A self-propelled or tractor drawn machine (4 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Once-over Harvester (204)	An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper or a last-over harvester.
Priming Aid (Looping on sticks) (205)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field take small bunches of tobacco and place the butt ends at both sides of tobacco sticks and then wrap twine around the bunches of tobacco until the sticks are filled.
Priming Aid (Field racking) (206)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in bulk racks used for curing.
Priming Aid (Field box filling) (207)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in big boxes used for curing.

SECTION X - PLANT BED AND FIELD OPERATIONS

Priming Aid (Other) (208)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field or at the barns place tobacco for curing in other than machines 205, 206, and 207 above.
Trailer (Harvest) (209)	A tractor or truck pulled trailer used to carry tobacco from the field to the barn.
Transplanter (210)	A power-drawn transplanting machine is operated by a driver, and carries 2, 4, or 8 persons on "setters", who ride the machine and alternate in placing or guiding the plants into the mechanism which spaces them at the proper intervals in the row. The machine opens the furrow, dumps a measured quantity of water and draws the soil about the roots of the plants.
Tying Machine (211)	A machine that loops tobacco with an automatic tying or sewing machine. The tobacco leaves and sticks are placed on a moving conveyor belt which passes them under a sewing head. The leaves are attached to the stick by stitches at the butt end.

MOWERS AND BALERS

Amish Harvest (400)	Non-motorized device for harvesting hay.
Bale Wagon (401 - 402)	This tool can be simply a wagon or trailer with a wide flat bed used to haul bales. Likewise, it can be a self-propelled unit that picks up the bales and stacks them on the bed in a manner that allows the baler to be unloaded by power to form a compact stack of bales. PTO units are also available. Same units also are able to pick up the stacked bales for further transport.

SECTION X - PLANT BED AND FIELD OPERATIONS

Bale Loader (403)	A device, either ground or engine driven that picks up the bales from the ground and deposits the bales onto the trucks or trailer as it moves down the windrow of bales. Largely used for small rectangular bales but models for the large round bales are available.
Balers (404 - 407)	Balers pick the hay or straw up from a windrow and compact it into either round or square bales which may be small (40 - 125 pounds) or large (1000 to 2000 pounds). Balers may be motor mounted, PTO or self-propelled.
Rotary Mower-Cutter, Chopper (408)	A machine similar to a rotary lawn mower used largely to cut weeds and roadsides but may be used to harvest a crop for hay or to shred crop residue. Size range from 4 feet to 20 or more feet of cut when hitched in multiple units. Available in integral, semi-mounted and pull-type. Mostly PTO powered. Cuts by means by a rapidly rotating blade either rigid or flexible.
Mower Conditioner PTO (409)	Consists of a cutterbar, a reel, a pair of full-width conditioning rolls, and a deflector. Width ranges from 7 to 12 feet.
Mower Conditioner (410)	Self-propelled.
Disc Mower (411)	A mower with a number of cutting blades on rotating discs mounted on a bar. The discs are driven from the bottom by a series of flat gears. The entire bar and disks go under the crop as it is cut.
Drum Mower (411)	A series of rotary drums or cylinders with blades attached. The drums are driven by an enclosed gear or chain train from the top. PTO powered.

SECTION X - PLANT BED AND FIELD OPERATIONS

Flail Mower Shredder (Rotary Chopper) (412)	A machine that mows, cuts or shreds crops by means of steel blades or knives on a horizontal rotating shaft or drum. The high speed of the drum (about 1850-2000 RPM) cause the hinged knives to cut or shred the crop. Can be used to harvest hay or to shred crop residue. Range in size from 5 to 15 feet or more.
Sickle Mower (413)	A machine with a reciprocating cutting sickle that runs in a cutter bar with guards and ledger plates. Mowers may be 3 pt. mounted, semi-mounted, belly mounted or trail type. Usual sizes are 7 to 9 ft. sickle or cutter bars but some heavy cutters are only 5 foot.
Dump-Rake (414)	A series of large "C" shaped teeth attached a bar or frame. This frame can be raised or lowered alternately to pick up the hay and "dump" it into windrowers. Either ground or PTO powered. Sizes range from 8 to 32 or more feet.
Rake Side Delivery (415)	A rake with a four or five bar reel. This is set at an angle to the direction of travel. The reel rotates, either PTO or ground driven, in the opposite direction of the carrier or tractor wheels. This motion along with the angle sweeps the crop into a windrow on the left or the right. Raking swath is 7 to 9 feet.
Wheel-Rake (416)	A series of overlapping wheels, four to five feet in diameter with spring teeth on the rim of the wheels. The wheels are mounted on a bar or frame at 10 to 60 degree angle to the direction of travel. The wheels are turned by contact with the crop and the ground. The 5 wheel rake covers about 16 3/4 feet and the 7 wheel about 20 feet.
Stacker Mover (417)	A forklift-like device for moving hay stacks.
Stacker Automatic (418)	A device for compacting hay.

SECTION X - PLANT BED AND FILED OPERATIONS

LAND FORMING OR SHAPING EQUIPMENT

Backhoe (500)	Large shovel or scoop operated with a mechanical arm. Often used for ditch digging.
Corrugator (501)	A device of various configurations that produces vee shaped indentions in the soil to aid in the distribution of irrigation water. The units may be mounted on a row cultivator for row crop or on a tool-bar for seeded crops.
Disk Border Maker (502)	Set of two single discs or two sets of 3 or more discs used to make borders for irrigation. Can be reversed to tear down borders. Usually mounted on a tool bar.
Ditch Closer (503)	A machine usually mounted on a 3-point hitch or on wheels pulled behind a tractor that pulls dirt together to fill in an irrigation or drainage ditch.
Ditcher (Vee Rotary) (504)	A machine either with a vee shaped blade or a rotary auger or fan that is used to cut field irrigation or drainage ditches. Either 3-point or trail mounted.
Float (505)	A device, usually homemade, that is used for minor rough levelling. Soil moving bars or blades may be made of wood or metal.
Land Plane-Leveler (506)	A machine used primarily to level land for irrigation or to improve drainage. This machine usually has two or more sets of wheels on a long wheel-base supporting one or more bowls, blades or baskets that are intended to carry soil from high points to low areas in a field. Some systems are controlled by a laser beam for precise levelling.

SECTION X - PLANT BED AND FIELD OPERATIONS

Levee-Plow-Disk (507)	A machine used to throw up levees or ridges between rice fields. Most machines have two sets of discs, each with one to three disc blades that throw the soil up into a levee. Most levee discs are tool-bar mounted. The disc sets can be reversed to tear down the levees.
Rear Mounted (508)	A curved blade, 5 to 8 feet long and 15 to 24 inches deep, attached to the 3-point hitch of a tractor. Most can be angled sideways and up and down from ground level either manually or hydraulically. Used for ditching, back filling, scraping and rough levelling.

OTHER IMPLEMENTS

Chaff/Straw Saver (600)	An attachment pulled behind a combine that bunches or stacks the chaff and/or straw as it comes from the combine. The small hay (straw) stocks are left in the field for later retrieval. The chaff or straw is used as feed or bedding.
Electric-Discharge Weed Killer (601)	A machine that has a PTO powered generator to produce an electric charge that uses the weed plant to complete an electrical circuit to the ground. The current causes the plant cells to rupture, killing the plant. Weeds must be taller than the plants in order for the method to be feasible. Utilizes a 50 KW generator powered by a 1000 RPM-PTO on a minimum 120 HP tractor.
Hay Wagon (602)	Flat bed wagon used to haul hay.
Off-field Thresher (603)	Stationary threshing machine.

SECTION X - PLANT BED AND FIELD OPERATIONS

Rock Picker (604)	A heavy duty machine with pick-up teeth or heavy duty rotating reels that deposits rocks and stones from "1" diameter to 500 pound boulders in a tank or bucket for removal from the field. Some rock pickers or harvesters are equipped with elevators that deposit the rocks directly into a truck or trailer.
Rock Windrower (605)	A heavy side-delivery or wheel type rake that moves the stones into windrows in order to speed up the process of rock picking.
Rodent (Gopher) Killer (606)	A machine with a sub-soil shank that allows poisoned bait to be injected into the soil at the same depth as the gopher burrows or runways. Fields are usually treated in a criss-cross pattern to get better coverage.
Rubber-Wheeled Weed Puller (607)	A series of paired rubber tired wheels set touching one another and rotating in opposite directions. As the machine moves forward at a level above the crop but below the weed tops, the weeds are caught by the spinning wheels and are pulled out.
Flail (608)	Same as flail mower. See 412.
Rotary (609)	Same as a rotary mower. See 408.
Silage Harvester (610)	Similar to forage harvester for chopping fodder.
Stalk Shredder (611)	A rotobeater with hard metal rods or cutting blades attached to a revolving horizontal shaft.
Tractor or Truck-no Attachments (612)	Self explanatory.

X1 CURING BARNS X1

1. Now I need to list all curing barns used in 1987. Did this operation use any CONVENTIONAL BARNS IN 1987?

   ▮ YES - 1a. How many? 795

   ☐ NO - *[go to 8]*

2. What was the TOTAL number of times the conventional barns were used to cure tobacco in 1987? *[total number of barns cured]* 796

3. How many of the conventional barns used—

   3a. fuel oil? 797

   3b. LP gas? 798

   3c. diesel? 799

   3d. some other kind of fuel? 800

4. *[for each positive answer in 3, ask]*
   What was the total quantity or cost of the *[mention curing fuel in 3]* for the conventional barns?

	— gallons —	OR — $ —
4a. fuel oil	801	802
4b. LP gas	803	804
4c. diesel	805	806
4d. other kinds of fuel		807

5. What was the AVERAGE capacity of all the conventional barns? .....sticks 808

6. How many of the conventional barns were—

   6a. less than 10 years old? 809

   6b. 10 to 25 years old? 810

   6c. over 25 years old? 811

7. Did this operation have any costs for repairing or maintaining the conventional barns?

   ☐ YES - 7a. How much did it cost? 812

   ☐ NO

8. Did this operation use any BULK curing barns in 1987?

   ☐ YES - 8a. How many? 813

   ☐ NO - *[go to Y]*

SECTION X1 - CURING BARNS

Purpose — To gather information about all curing facilities used on this operation for the 1987 flue-cured tobacco crop.

Conventional Barns

Item 1 — Record the number of conventional barns used for the 1987 crop. Exclude conventional barns in Items 1 through 7 that were available but never used in 1987. If no conventional barns were used, go to Item 8.

Item 2 — Record the total number of times that all conventional barns were used to cure tobacco in 1987. For example, if 3 different conventional barns were used: 1 barn was used 6 times and 2 barns were used 7 times each, then the total number of barns cured would be (1 x 6) + (2 x 7) = 20. The number 20 would be entered in cell 796.

Item 3 — Record the total number of conventional barns that used each of the listed fuel types. For example, if 2 barns used LP gas and 1 barn used diesel, you would record a 2 in cell 798 and a 1 in cell 799. Some barns may use one kind of fuel and some another.

Item 4 — For each of the fuels used to cure tobacco in Item 3, record the total gallons or total dollars of each type of fuel used in 1987 to cure tobacco. More than one kind of fuel may have been used.

Item 5 — Record the average number of sticks used for all conventional barns used for curing tobacco in 1987.

Item 6 — Record the number of barns for each age group. For example, if 1 barn was built in 1964 and 2 barns were built in 1955, enter a 1 in 6b and a 2 in 6c.

SECTION X1 - CURING BARNS

Item 7 — Record the dollar amount spent by the operation for repairs on all conventional barns in 1987. Repair costs constitute any improvements that were made to existing structures. They do not include additions to the structures. Include any labor charges paid if available.

Bulk Curing Barns

Item 8 — Record the number of bulk curing barns used for the 1987 crop. Exclude bulk curing barns in Items 8 through 16 that were available but never used in 1987. If no bulk curing barns were used, go to Section Y.

Item 9 — Record the total number of times that all bulk barns were used to cure tobacco in 1987. For example, if 9 different bulk barns were used: 4 barns were used 7 times and 5 barns were used 6 times each, then the total number of barns cured would be (4 x 7) + (5 x 6) = 58. The number 58 would be entered in cell 814.

Item 10 — Record the total number of bulk barns that used each of the listed fuel types. For example, if 4 barns used LP gas and 5 barns used diesel, you would record a 4 in cell 816 and a 5 in cell 817. Some barns may use one kind of fuel and some another.

Item 11 — For each of the fuels used to cure tobacco in Item 10, record the total gallons or total dollars of each type of fuel used in 1987 to cure tobacco. More than one kind of fuel may have been used.

Item 12 — Enter the total number of bulk barns with racks (cell 828) and the total number of bulk barns with boxes (cell 829), used for curing tobacco in 1987.

Item 13a — If item 12a was positive, then enter the average number of racks per barn for all barns containing racks.

X1 curing barns — continued X1

9. What was the TOTAL number of times the bulk barns were used to cure tobacco in 1987? *[total number of barns cured]* 814

10. How many of the bulk barns used—

10a. fuel oil? 815

10b. LP gas? 816

10c. diesel? 817

10d. some other kind of fuel? 818

11. *[for each positive answer in 10, ask]*
What was the total quantity **or** cost of the *[mention curing fuel in 10]* for the bulk barns?

	— gallons —	OR — $ —
11a. fuel oil	819	820
11b. LP gas	821	822
11c. diesel	823	824
11d. other kinds of fuel		825

12. How many of the bulk barns were—

12a. rack barns? 826

12b. big box barns? 827

13. *[for each positive answer in 12, ask]*
What was the AVERAGE number of—

13a. racks per barn? 828

13b. boxes per barn? 829

14. In what year did this operation purchase the greatest number of bulk barns? ..... 830 — —

14a. How many were purchased? 831

14b. What was the (average) cost per barn? .....dollars 832

15. Did this operation have any costs for repairing, maintaining or servicing the bulk curing barns and sheds?

☐ YES ☐ NO - *[go to 16]*

— $ —

15a. How much did it cost? 833

16. How much electricity was used in the **bulk** barns **or** what was the total cost?

KWH	OR	Total cost — $ —
871		870

SECTION X1 - CURING BARNS

Item 13b — If Item 12b was positive, then enter the average number of boxes per barn for all barns containing boxes.

Item 14 — Record the year that the majority of the barns were purchased. For example, if the operator owns 9 barns, with 4 barns purchased in 1979 and 5 barns purchased in 1983, enter 83 in cell 830 (enter only the last 2 digits of the year). If an equal number was purchased in separate years, record the most recent purchases.

Item 14a — Record the number of bulk barns purchased in cell 830 only. For the above example, 5 barns were purchased in 1983 and a 5 would be entered in cell 831.

Item 14b — Record the average cost of the barns purchased in cell 831. For example, if the 5 barns were purchased in 1983 with 2 barns at $4,000 and 3 barns at $4,500, then the average cost would be ($4,000 x 3) + ($4,500 x 2)/5 = $4,200. The amount of 4,200 would be recorded in cell 832. Include the cost of the foundation, shed, wiring, and other items necessary to make the barn functional.

Item 15 — Record the dollar amount spent by the operation for repairs on all bulk barns and their sheds in 1987. Repair costs constitute any improvements that were made to existing structures. They do not include additions to the structures. Include any labor charges paid if available.

Item 16 — Record the total kilowatt hours of electricity used in bulk curing barns in 1987 or the total cost of electricity used for curing flue-cured tobacco in bulk barns.

— 36 —

Y CUSTOM and TECHNICAL SERVICES — TOBACCO

1. Was any agricultural **service** or **custom work** done on this operation for a fee or on a contract basis for the tobacco? *[Include plant bed and land preparation, transplanting, field care, harvesting, hauling, etc. To be considered custom work, both machinery and labor must be provided.]*

☐ YES ☐ NO - *[go to 2]*

— $ —

1a. How much did it cost? 834

2. Were any **technical services** such as soil testing or scouting performed on the tobacco for a fee?

☐ YES ☐ NO - *[go to Z]*

2a. How much did it cost? 526

OR

cost/unit dollars & cents __•__

and total units

SECTION Y - CUSTOM WORK

Purpose	To obtain data for custom operations performed on the operation's 1987 flue-cured tobacco.
Definition	Custom work is the hiring of a machine service which provides both the machinery required and the labor necessary to complete the operation. Frequently, a respondent may rent a machine and operate it himself. This is not a custom service but rather normal machinery rental. Machinery rental operations should be reported in Section X, Field Operations.
Item 1	Check the appropriate box indicating if the operator hired any custom work done on the 1987 flue-cured tobacco. Exclude any custom fertilizer or chemical application charges recorded earlier in the questionnaire. Exclude "swap" labor. Complete the item 2 if "Yes" is checked.
Item 2	This item is the total cost for technical services including soil testing and scouting. If there is a cost for the 1987 flue-cured tobacco crop, enter the total cost (cell 526) or enter the cost per unit and the number of units, then calculate the total cost and enter in cell 526.

Z TOBACCO LABOR Z

1. What was the **major** harvesting method used? *[circle code]*

- ☐ walking primers = 1
- ☐ riding primers = 2
- ☐ one-row multi-pass harvester = 3
- ☐ two-row multi-pass harvester = 4
- ☐ once over = 5

2. What was the **major** curing preparation method used? *[circle code]*

- ☐ hand loop-barn = 1
- ☐ hand loop-field = 2
- ☐ machine tie on stocks-barn = 3
- ☐ bulk rack at barn = 4
- ☐ bulk rack in field = 5
- ☐ fill big boxes at barn = 6
- ☐ fill big boxes in field = 7

3. What was the **major** curing barn used? *[circle code]*

- ☐ conventional barn = 1
- ☐ bulk barn = 2

4. *[Record the three digit code corresponding to questions 1, 2 and 3; this will be the MAJOR HARVESTING SYSTEM]* — 835 ___

— acres —

5. How many acres were harvested with this system? ..... — 836 ___.__

6. How many primings were performed on the *[Item 5]* acres with this system? ..... — 837

7. How many **TOTAL** primings were performed on the *[Item 5]* acres? ..... — 838

8. What was the crew size for the **MAJOR HARVEST SYSTEM**? ..... — 839

8a. How many of these were—

(1) unpaid workers? ..... — 840

(2) **paid** workers? ..... — 841

9. Did this operation use any harvest system other than *[see 4]*?

☐ YES ☐ NO - *[go to 10]*

9a. What other system(s) were used? *[enter codes from Z-1, Z-2, Z-3]*

(1) *[Specify]*_____ ..... — 842 ___

—What percent of the TOTAL production was harvested with this system? ..... percent — 843

(2) *[Specify]*_____ ..... — 844 ___

—What percent of the TOTAL production was harvested with this system? ..... percent — 845

SECTION Z: TOBACCO LABOR

MAJOR HARVEST SYSTEM LABOR

Purpose — To identify the operator's major harvest system and to obtain information about the labor used in conjunction with this major harvest system. Detailed information about labor use will be obtained only for the major harvest system.

Items 1 - 3 — The first step is to determine the operator's major 1987 harvest system. One and only one block should be checked under each of the following:

1. MAJOR HARVESTING METHOD
2. MAJOR CURING PREPARATION
3. MAJOR CURING BARN

When more than one harvest system was used, check the system used to harvest the largest proportion of production (pounds).

Item 4 — In cell 835, enter the three-digit code corresponding to the boxes just checked above beginning with the harvest method and ending with the curing barn.

Item 5 — For the system you have just identified, record the number of acres harvested in 1987. Enter the acreage only once, even though there will usually be more than one priming on this acreage with this system. Enter to the nearest tenth of an acre.

Item 6 — Record the number of primings made with the system checked in Item 4. There may be 5 or more primings in a field.

Item 7 — Record the total number of primings performed on the acres recorded in Item 5. If a trip was made through the field to pull lower stalk leaves that were left in the field, this should be included in the total. If only one harvest system was used on the acreage specified in Item 5, the entry will be the same as the entry for Item 6, unless lower stalk leaves were pulled but not cured.

SECTION Z -TOBACCO LABOR

Item 8 — Record the number of people comprising the crew that harvested tobacco with the system specified in Item 4. This may take some probing because the operator may indicate that a different number of people were used on different days. If so, determine the number most common or typical. Include labor supplied by (1) unpaid workers (including family members and exchange workers, and (2) paid workers (including family members if they were paid). If the operator was also involved, then remember to include him.

Item 9 — Check the appropriate box indicating whether the operator used a harvest system other than the one specified in Item 4. If yes, then complete Item 9a. Otherwise skip to Item 10 on the next page of the questionnaire.

Z tobacco labor — continued Z

10. Now I need to obtain more detailed information on the labor used in conjunction with the MAJOR HARVESTING SYSTEM.

11. Did this operation have any—*[check all that apply then complete cols. 12-15]*	12. What was the average crew size?	13. What was the average number of days per priming?	14. Was any of this work done by UNPAID workers or in exchange for other work?	14a. How many were there?
☐ primers (croppers)?	847	848	☐ YES ——► ☐ NO-*[go to 15]*	849
☐ handers, loopers or tying machine workers?	856	857	☐ YES ——► ☐ NO-*[go to 15]*	858
☐ bulk rackers or box fillers?	865	866	☐ YES ——► ☐ NO-*[go to 15]*	867
☐ tractor drivers?	874	875	☐ YES ——► ☐ NO-*[go to 15]*	876
☐ priming aid or automatic harvester drivers?	883	884	☐ YES ——► ☐ NO-*[go to 15]*	885
☐ hanging in **conventional** or filling bulkor big box barns?	892	893	☐ YES ——► ☐ NO-*[go to 15]*	894
☐ take out and sheet workers?	901	902	☐ YES ——► ☐ NO-*[go to 15]*	903

SECTION Z: TOBACCO LABOR

Item 9a — Enter the 3 digit code for the other harvest system(s) and the percent of the total pounds harvested with each system. For the additional harvest system(s), refer to Items 1-3 to determine the proper three digit code to enter. Now, forget about these other harvest system(s). You are concerned only with the MAJOR HARVESTING SYSTEM for obtaining detailed labor use information.

Item 10 — This table is designed to obtain detailed information on labor used in conjunction with the operator's MAJOR HARVESTING SYSTEM. This is a preprinted list of the types of labor we are concerned with. Become familiar with this list. If the operator performed one or more of these tasks, then he will be accounted for. However, if the operator Supervised the harvest operation, then he will not be counted here.

Item 11 — Check all the labor items that were performed on the tobacco acres using the Major Harvesting System.

Item 12 — Record the average number of people performing each of the jobs regardless of whether they were family, exchange, or hired workers. If a different number of people did some of the jobs at different times, determine the most common or typical number that did the job. If a person did more than one job, he will be recorded as one person for each of these jobs. This column may or may not add up to the total crew size in Item 8.

Item 13 — Record the average number of days worked per priming. In some cases, different people may work a different number of days in doing a specific job. When this occurs, determine the average number of days worked. For example, person number one works 5 days, person number two works 4 days, and person number 3 works 3 days -- then record "4".

SECTION Z: TOBACCO LABOR

Item 14 — If any labor item was performed by unpaid labor, complete Items 14a and 14b, otherwise go to Item 15. It should be noted that there may be both unpaid and paid labor used for any of the labor operations. In these cases there would be entries in Items 14 and 15.

Item 14a — List the average number of unpaid workers for a specific job in this column. Do not list paid family workers.

Item 14b — Record the average number of hours each person worked at specific jobs for the primings recorded in Item 6. For example, if primers each worked 6 hours a day priming and 2 hours the same day filling bulk barns, then in Item 14b you would enter 6 for primers and 2 for filling bulk and big box barns.

Item 15 — If any labor item was performed by paid workers, complete Items 15a-15d, otherwise go to the next labor item checked in Item 11.

Z tobacco labor — continued Z

14b. How many HOURS per day did they usually work?	15. Was any work done by PAID workers?	15a. How many usually worked?	15b. How many HOURS did they usually work per day?	15c. What was the (average) wage per hour?	OR	15d. What was the (average) payment per person per barn?
				— dol/cents —		— dol/cents —
850	☐ YES ——→ ☐ NO-*[go to next operation performed]*	851	852	853 • __ __	OR	854 • __ __
859	☐ YES ——→ ☐ NO-*[go to next operation performed]*	860	861	862 • __ __	OR	863 • __ __
868	☐ YES ——→ ☐ NO-*[go to next operation performed]*	869	870	871 • __ __	OR	872 • __ __
877	☐ YES ——→ ☐ NO-*[go to next operation performed]*	878	879	880 • __ __	OR	881 • __ __
886	☐ YES ——→ ☐ NO-*[go to next operation performed]*	887	888	889 • __ __	OR	890 • __ __
895	☐ YES ——→ ☐ NO-*[go to next operation performed]*	896	897	898 • __ __	OR	899 • __ __
904	☐ YES ——→ ☐ NO-*[go to next operation performed]*	905	906	907 • __ __	OR	908 • __ __

SECTION Z: TOBACCO LABOR

Item 15a — Record the average number of paid workers, including paid family members, performing each of the jobs. If a different number of people did some of the jobs at different times, determine the most common or typical number that did the job. If a person did more than one job, he will be recorded as one person for each of these jobs. This column may or may not add up to the total crew size in Item 8.

Item 15b — Record the average or typical number of hours paid workers usually spent performing each of the jobs reported.

Item 15c — Record the average or typical wage rate per hour paid hired workers doing each of the jobs reported.

Item 15d — Record the average typical payment paid per person doing each of the jobs reported if they were paid on a per barn basis.

PLEASE NOTE: If an operator paid some workers on an hourly basis (Item 15c) and some workers on a per barn basis (Item 15d) for any one operation, fill in 15c or 15d based on which payment method was used the most often.

When all sections are completed on pages 38 and 39, go to Item 17 on the next page in the questionnaire.

NONHARVEST LABOR USED ON FLUE-CURED TOBACCO

Purpose — To obtain information on some of the non-harvest labor used for specific labor intensive jobs associated with the 1987 flue-cured tobacco crop. Machine labor associated with many operations recorded in Section X is estimated by the computer and, therefore, not asked here.

SECTION Z: TOBACCO LABOR

The table in this section will provide the number of people and hours worked for specific labor intensive jobs. The workers are separated into two groups: unpaid and paid workers. Include all persons that provided labor for each task, but exclude people hired by piece rate or people connected with custom operations.

Item 17 — This is a list of specific nonharvest jobs. Check all the operations performed on the tobacco acres.

Item 18 — If any nonharvest job was performed by unpaid labor, complete Items 18a and 18b, otherwise go to Item 19. It should be noted that there may be both unpaid and paid labor used for any of the nonharvest operations, which means that there would be entries in Items 18a and 18b, as well as in Items 19a and 19b.

Z tobacco labor — continued Z

16. Now I have some questions on labor used on **specific** nonharvest jobs.

17. Did this operation have any labor for— *[check all that apply and fill columns]*	18. Was any of this work done by UNPAID workers or in exchange for other work?	18a. How many workers were there?	18b. How many TOTAL hours did they work?	19. Was any work done by PAID workers (excl. piece rate)?	19a. How many workers were there?	19b. How many TOTAL hours did they work?
☐ plant bed preparation and care?	☐ YES —► ☐ NO-*[go to 19]*	909	910	☐ YES —► ☐ NO-*[go to next operation performed]*	911	912
☐ pulling and hauling plants?	☐ YES —► ☐ NO-*[go to 19]*	913	914	☐ YES —► ☐ NO-*[go to next operation performed]*	915	916
☐ transplanting	☐ YES —► ☐ NO-*[go to 19]*	917	918	☐ YES —► ☐ NO-*[go to next operation performed]*	919	920
☐ hoeing (chopping)?	☐ YES —► ☐ NO-*[go to 19]*	921	922	☐ YES —► ☐ NO-*[go to next operation performed]*	923	924
☐ irrigating?	☐ YES —► ☐ NO-*[go to 19]*	925	926	☐ YES —► ☐ NO-*[go to next operation performed]*	927	928
☐ topping and suckering?	☐ YES —► ☐ NO-*[go to 19]*	929	930	☐ YES —► ☐ NO-*[go to 20]*	931	932

SECTION Z: TOBACCO LABOR

Item 18a — Record the number of unpaid persons (including family and exchange) who worked on each specific nonharvest job for the 1987 flue-cured crop.

Item 18b — Record the total hours all persons in each group worked on the respective jobs. Remember to enter the total hours for all persons and not the average per person.

Item 19 — If any nonharvest job was performed by paid workers, complete Items 19a and 19b, otherwise go to the next nonharvest job checked in Item 17.

Item 19a — Record the number of paid persons (including family members if paid) who worked on each specific nonharvest job for the 1987 flue-cured crop, otherwise go to the next nonharvest labor item checked in Item 17.

Item 19b — Record the total hours all persons in each group worked on the respective jobs. Remember to enter the total hours for all persons and not the average per person.

When all sections are completed on this page, go to Item 20 on the next page of the questionnaire.

Item 20 — Enter the operator's best estimate of the percent of non-harvest tractor and machinery labor that was hired.

Item 21 — This question is designed to obtain hourly wage rates paid to non-harvest workers performing (1) plant bed and field care (hoeing, topping, etc.), and (2) transplanting jobs.

Item 21a — Obtain an hourly rate to the nearest cent. This is the cash rate paid and should include any value of bonuses received by the workers. Wages paid by the day, week, or month should be converted to an estimated hourly rate.

SECTION Z: TOBACCO LABOR

Item 22 — This question is designed to obtain piece rates paid to non-harvest workers performing (1) plant bed and field care (hoeing, topping, etc.), and (2) transplanting jobs.

Item 22a — Piece rate work involves a person hired to do a certain task who is paid by the amount of work accomplished such as per acre, per pound, etc. The operator can report rate per unit and total units completed or the total cost of the operation.

Item 23 — This question obtains information on some characteristics of all the different people who were hired to work on the operator's 1987 flue-cured tobacco crop. Data will be used to determine the effects of harvest mechanization on labor use and evaluate potential changes in labor supply and demand.

Z tobacco labor —continued Z

— % —

20. What percent of all non-harvest **machinery** operations was performed by paid workers, on the flue-cured tobacco? 933

21. Did this operation have any workers paid on an HOURLY basis?

☐ YES ☐ NO - *[go to 22]*

21a. What was the (average) hourly wage paid to workers doing— — $ —

(1) plant bed and field care? ..... 934 __ • __ __

(2) transplanting? ..... 935 __ • __ __

22. Did this operation have any workers paid on a PIECE RATE basis?

☐ YES ☐ NO - *[go to 23]*

22a. What was the **rate per unit and total units OR total cost** to workers doing—

	rate/unit — $ —	**and**	total units	**OR**	TOTAL COST — $ —
(1) plant bed and field care?	936 __ • __ __		937		938
(2) transplanting?	939 __ • __ __		940		941

23. How many of ALL the people who were **paid** to work on tobacco were— — number —

23a. under 18 years of age? 942

23b. 18 to 45 years old? 943

23c. over 45? 944

[of the TOTAL workers in 23a-23c]

23d. female? 945

23e. employed full-time? *[more than 150 days by this operation]* 946

23f. migrant workers? 947

24. What was the total cost of all NON-CASH benefits provided to MIGRANT workers, such as drinks, field toilets, snacks, rental values of housing and other personal property, utilities and anything else? — $ — 948

24a. What percent was for tobacco? ..... 949 %

SECTION Z: TOBACCO LABOR

Item 23a-c — Record the total number of people paid to work in flue-cured tobacco on the operator's farm in each of the three age groups. In other words, what was the total number of different names within each age group that were paid to work on the 1987 flue-cured tobacco crop.

Item 23d — Record the total number of paid workers who were female.

Item 23e — Record the number of paid workers who were employed on the operator's farm in 1987 for 150 or more days. In terms of months, this would mean 6 months or more. Generally this includes full-time hired workers. This is not limited to flue-cured tobacco work, but includes work on any other crop or livestock.

Item 23f — Record the number of migrant workers who were employed on the operator's farm in 1987 for flue-cured tobacco work. A migrant worker is a person who moves into another area in order to find work, especially seasonal labor.

Item 24 — Enter the dollar value of the operator's best estimate of non-cash benefits including drinks, field toilets, snacks, meals, rental values of housing and other personal property, estimated annual cost of maintaining housing, utilities, and anything else provided to migrant workers. Use your best judgment here, we are looking for the operator's best dollar estimate of non-cash benefits provided to migrant workers.

Item 24a — Of the dollar amount in Item 24, enter the operator's best estimate of the percent of non-cash benefits allocated to the 1987 flue-cured tobacco crop based on the proportion of total spent working on flue-cured tobacco.

CHAPTER 10
BARLEY
1987 FARM COSTS AND RETURNS SURVEY

Q ACREAGE and SEEDING — BARLEY Q

1. *[If no barley planted—see B—go to BB]*
Now I need more information about the barley planted on this operation in 1987.

2. How many acres of barley were planted on (irrigated, non-irrigated) land that this operation—
— acres planted —

	Irrigated	Non-Irr.	Total
2a. owned?	384	385	386
2b. rented on a cash basis?	387	388	389
2c. rented on a share basis?	390	391	392
2d. used rent free?	393	394	395
[Enter totals below and in right-hand column]			
2e. TOTALS	396	397	398

3. What was the (average) seeding rate per acre (one time over)? .....pounds/acre — 399

4. What percent of the seed used for the 1987 crop was home grown? ....percent — 946

4a. *[If any seed was home grown]* What was the cost of cleaning and treating the seed?.....dollars/cents/bu. — 945 __•__

5. *[If non-irrigated barley planted]* How many acres were planted on fallow land? .....acres — 944

5a. How many of these acres had been seeded with a cover crop?..acres — 943

6. Was any barley straw harvested?

☐ YES ☐ NO - *[go to R]*

6a. How many acres of straw were harvested? .....acres — 400

6b. How many tons were produced? .....tons — 401

6c. How much was a ton of straw worth at harvest? .....$/ton — 402

CHAPTER 10 - BARLEY

SECTION Q - ACREAGE AND SEEDING - BARLEY

Purpose — To determine the tenure of the operator's 1987 barley acreage, the seeding rate and if any straw was harvested.

General — The total acres includes all owned, rented, and rent free land for which the operator makes the day-to-day management decisions. The total acres may be contiguous or non-contiguous. If the operation is non-contiguous, the operator must make the day-to-day decisions for each parcel of land in the non-contiguous operation.

Definitions for items 2a through 2e are the same for all barley planted.

Item 1 — The enumerator note instructs you to go to Section BB, page 38, if no barley was planted. You may need to refer to Section B, page 5, to see if any barley was reported.

Item 2a — Include land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustees of a divided estate.

Item 2b - 2d — Include all land rented from others (private individuals, Federal, State, railroad, etc.) for which the operator used the land rent free, paid cash rent on a per acre basis, or paid for the land with a share of the barley (either standing or harvested). Record the acres of barley that were irrigated or non-irrigated by land tenure. The sum of the reported irrigated and non-irrigated acres should equal the total acres of barley planted on this operation in 1987. Data from item 2 will be used primarily to determine a land charge for the barley.

Item 3 — Record the average seeding rate per acre in either pounds per acre or seeds per acre. If more than one classification of barley was planted, enter the rate for each class in the margin. The State office will compute an average. The average rate of seeding barley in the United States in 1985 was 23,500 kernels per acre.

SECTION Q - ACREAGE AND SEEDING - BARLEY

Item 4 — Record the percent of barley seed that was grown on this operation.

Item 4a — If any homegrown seed was used, record the cost of seed cleaning and treating. Record it in dollars and cents per bushel.

Item 5 — Determine if non-irrigated barley was planted on land that had been fallow the previous year. If so, record the number of barley acres that were planted on fallow land.

Item 5a — For barley acres planted on fallow land, record the number of acres that had been seeded with a cover crop while fallow.

Item 6 — Determine if any barley straw was harvested from any of the barley acres.

Item 6a — Record the total acres of barley straw harvested.

Item 6b — Record the total tons of barley straw harvested.

Item 6c — Record the estimated per ton value of the straw to the nearest whole dollar.

— 25 —

R CASH RENT — BARLEY R

1. *[If barley was not planted on **cash rented land**—see Q, go to S.]*

2. What was the (average) cash rent per acre for—

	— dollars per acre —	
	Irrigated	Non-Irr.
Irrigated (non-irrigated) land barley was grown on?	403	404

3. *[If barley was not planted on cash rented **irrigated land**—go to S.]*

4. I shall read some costs of irrigation; please tell me what percent the landlord **was or would have** been required to pay according to the agreement.

	— % —
4a. **purchased** irrigation water?	406
4b. **purchased** pumps and motors?	407
4c. **purchased** sprinkler systems?	408
4d. pumps, motor and sprinkler system **repairs**?	409
4e. power or fuel costs?	410

SECTION R - CASH RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any cash rental arrangements that this operation was involved in for the production of barley.

Cash Rent

This section should be completed of cash rented acres were reported in Section Q, cells 387 through 389. If there is more than 1 cash rent of agreement, choose the agreement involving the largest barley acreage. In cases where 2 leases may qualify as largest in terms of the same number of acres, select the one that had the largest total production.

Item 1

Item 1 determines if any barley was planted on cash rented land.

Item 2

Record the (average) cash rent paid per acre of irrigated and non-irrigated land for barley. The entries should be to the nearest whole dollar.

If two or more tracts of irrigated (non-irrigated) barley were cash rented, under the same agreement, with differing per acre rent rates, compute a weighted average rent. For example, if 100 acres are rented for $60 per acre and 50 acres are rented for $40 per acre, the weighted average would be determined as follows:

100 X $60 =	$6,000
50 X $40 =	$2,000
150	$8,000

$8,000 divided by 150 acres equals $53.00 cash rent per acre.

Item 3

The enumerator note between questions 2 and 4 determines if any barley were planted on cash rented irrigated land.

Item 4

If the operation had more than one cash rented irrigated barley arrangement, select the agreement with the largest harvested acreage. In cases where 2 leases may qualify in terms of acreage select the one with the largest total production.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

S SHARE RENT — BARLEY S

1. *[If no barley planted on **share rented land**—see Q, go to T.]*

   Now I would like some information about barley production on the **share** rented acres.

   [If more than one share rent agreement] Let's take the rental agreement with the **largest** barley acreage.

	How many acres under this agreement were planted to **barley** in 1987?	411
2.	What was the LANDLORD'S percentage share of the **barley**? ....percent	412

3. *[In question 3 record what percent the landlord **was or would have been** required to pay according to the agreement in 1.]*

   Now I would like to record the landlord's percentage share of any chemical, harvesting, and irrigation expenses.

   What was the landlord's share for any—

		— % —
3a.	fertilizer, lime and soil conditioners?	413
3b.	pesticides?	414
3c.	seed?	415
3d.	all **harvesting** expenses?	416
3e.	all **hauling** expenses?	417
3f.	**purchased** irrigation water?	418
3g.	**purchased** pumps and motors?	419
3h.	**purchased** sprinkler systems?	420
3i.	pumps, motor and sprinkler system **repairs**?	421
3j.	power or fuel costs?	422

SECTION S - SHARE RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any share rental arrangements that this operation was involved in for the production of barley. With share rent, the farmer gives the landlord a percent of the harvested crop rather than cash.

Share Rental

The questions on this page refer to the rental agreement with the largest total barley acreage if the operation had more than one share rental agreement. In cases where two or more agreements may qualify as largest in number of acres, select the one that had the largest total production.

Item 1

This directs you to complete this page if any barley was planted on share rented land in Section Q, page 24.

Record the acres of barley included in this agreement.

Item 2

Record the landlord's share, in percent, of the barley.

Items 3a through 3e

Record the landlord's share, in percent, of the various input items used on the acres reported in item. Ask each item separately as the landlord's share may be a different percent for each item.

Items 3f through 3j

These questions ask irrigation costs. Leave it blank if the leased land under this arrangement was not irrigated. If the land was irrigated, the percentage paid by the landlord is to be recorded.

Determine if the specific irrigation cost item is relevant to the verbal or written agreement. If not, ask the next cost item, leaving the cell blank.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

SECTION S - SHARE RENTAL ARRANGEMENTS

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

T FERTILIZER — BARLEY T

1. What fertilizer was used on the entire barley crop?
(Include all materials applied in the fall of 1986 for the 1987 crop, all primary nutrient materials and all materials paid for by the landlord.) *[Enter analysis or actual pounds in column 1.]*

(1) MATERIALS USED N	(1) P_2O_5	(1) K_2O	(2) How much was used per acre per application? 1/	(3) What was the unit *[enter code Lbs=4 Actual Ing.=2 Gal. = 1]*	(4) How many acres was this applied to? 2/	(5) Was it CUSTOM APPLIED? *[If YES, enter cost of application only 3/]* dollars & cents per acre
527 16	528 20	529 6	530 75	531 4	532 250	533 _•__
534 50	535 —	536 —	537 —	538 2	539 100	540 _•__
541 82	542 —	543 —	544 100	545 4	546 70	547 _•__
548	549	550	551	552	553	554 _•__
TONS OF LIME			555 5		556 200	557 _•__
TONS OF GYPSUM (LANDPLASTER)			558		559	560 _•__
MICRO NUTRIENTS		Code	562	563	564	
[Specify] Iron		561 4	1	4	200	
[Specify]		565	566	567	568	

1/ *[If actual pounds of nutrients are reported in column 1, leave column 2 blank and enter code 2 in column 3 for actual ingredients.]*

2/ *[Total acres times the number of applications.]*

3/ *[Enter application costs only in column 5. If the application costs and material costs cannot be separated, leave blank.]*

Codes for Micro-Nutr.	
Boron	*=1*
Calcium	*=2*
Copper	*=3*
Iron	*=4*
Magnesium	*=5*
Manganese	*=6*
Molybdenum	*=7*
Zinc	*=8*
Sulphur	*=9*

SECTION T - FERTILIZER

Purpose

To obtain data on the quantities of fertilizer elements used on this operation's barley and data on custom application rates.

Include any costs for fertilizer paid for, in part, or in full by the landlord.

Columns 1, 2 and 3

The first four lines are to record the use of major fertilizer nutrients which are:

Nitrogen N

Available Phosphorus (P205)

Water soluble potash (K20)

These nutrients can be applied to a crop by several different methods, including:

(1) broadcast spreading of dry material;

(2) through an attachment to a drill or planter (this is usually dry material but liquid fertilizer can also be applied this way);

(3) through dripping liquid fertilizer material into the irrigation system;

(4) aerial application (found mainly on rice, but possible on other crops);

(5) and through chemical sprayer systems where small amounts of fertilizer are sprayed on to the foliage of a plant and absorbed through the leaves. For example, this is frequently done in cotton production and is called "foliar application."

SECTION T - FERTILIZER

Fertilizer can also be applied as plow-down prior to planting, at planting time, or as "side dressing" or foliar application throughout the growing season.

All of the fertilizer applied by these methods is to be included in this section.

Record in this section the quantities of nutrients applied per acre to barley. Use of these three nutrients can be reported in two ways: either (1) by analysis in percent of the material applied, or (2) in pounds of actual ingredients.

The common method of reporting this type of fertilizer will be by analysis, i.e. 16-20-6. When fertilizer is bought by the bag, the analysis will be printed on the front. In the first line of the example, in this section, is an illustration of this method. When the analysis is given, the first number is the percent of nitrogen, the second is the percent of phosphorous and the third is the percent of potash.

There are hundreds of different analyses of fertilizer. With mixing equipment now available, a producer can get almost any mix of fertilizer ingredients desired.

Some fertilizers contain only one nutrient, such as 0-45-0, which is 45 percent phosphorus with no nitrogen or potash. Another common fertilizer is 33-0-0, which is 33 percent nitrogen only.

SECTION T - FERTILIZER

The sum of the three analyses cannot exceed 85. Chemists cannot make fertilizer without at least 15 percent other ingredients as carriers. If a producer reports something like 35-45-20, he must be reporting pounds actual ingredients instead of analysis since the three percentages add up to 100 percent. **Just remember, the sum of the three percentages cannot exceed 85.**

A producer may say he applied 10-10-16-2. The fourth item is the percentage or pounds of a trace element which should be listed below under "other material."

The other common method of reporting fertilizer is in pounds of actual or active ingredients. In line 2 of the example, the producer reported 50 pounds of actual nitrogen, no phosphorous and no potash. In this case, he applied it to only 100 acres of barley. When a farmer reports application in pounds of actual ingredients, probe as to what type of fertilizer he applied. Some farmers are also confused on this item. He may have applied 50 pounds per acre of 0-0-33 which is only potash and would be only 16.5 pounds of actual potash. However, if he confirms that it was 50 pounds of actual potash, then you would record it as in line 2 of our example. In this case, leave column 2 blank and record a "2" in column 3.

Farmers may also report fertilizer by name. The following are some more common fertilizers with the usual analysis.

SECTION T - FERTILIZER

NAME	PERCENTAGE ACTIVE INGREDIENTS		
	N	P	K
Anhydrous ammonia	82	--	--
Aqua ammonia	20	--	--
Ammonium nitrate	33	--	--
Ammonium sulfate	20	--	--
Sodium nitrate	16	--	--
Urea	45	--	--
Super phosphate (22% & under)	--	19	--
Super phosphate (over 22%)	--	45	--
Ammonium phosphate	16	27	--
Diammonium phosphate	18	46	--
Monammonium phosphate	11	48	--
Potassium chloride	--	--	60
Potassium nitrate	13	--	44
Potassium sodium nitrate	15	--	14
Potassium sulfate	--	--	49

Anhydrous ammonia is the strongest nitrogen fertilizer available. It is a gas that must be kept under pressure (in a tank) and is injected into the ground. (It is a liquid when under pressure, but turns into a gas when released and will be lost if not injected into the soil). It is a very popular form of fertilizer because it is often cheaper than other forms. It can be reported to you as "anhydrous", as "82-0-0", or in "units of nitrogen" or as "pounds of active ingredients". Line 3, shows the use of 100 pounds per acre of anhydrous ammonia.

Aqua ammonia is one of the more common types of liquid nitrogen fertilizers. It is made up of anhydrous ammonia and water and is often found in western states. It may be reported in pounds or gallons. Although it is a liquid, it is usually reported in pounds of active ingredients.

Fertilizers applied through an irrigation system will often be reported in pounds or "units" of actual ingredients which can be recorded as on line 2.

SECTION T - FERTILIZER

Urea is also a commonly used nitrogen fertilizer because of its high analysis. It may be added through an irrigation system, usually as a nitrogen solution.

With many of the other named fertilizers the analysis may vary. Probe to determine if the farmer knows the analysis or pounds of actual ingredients applied. If he does not know the analysis, only the name, use the analysis given here, rounded to the nearest pound.

Report the amounts applied per application in columns 1 and 2. When column 1 reports active ingredients, leave column 2 blank. Multiple applications will be reflected in column 4, where total acres equals the number of acres times the number of applications.

Lime

Lime is usually applied broadcast as a dry material but wet limes are also available. The rates of application will be in tons per acre. It is used to reduce soil acidity. Use of lime will be concentrated in areas east of the Plains States. Very little is used in the West.

Gypsum (Landplaster)

Gypsum, or calcium sulfate, is used mainly by peanut growers. It's used to loosen heavy clay soil, and more importantly to supply calcium. It is usually applied in tons.

Micro-Nutrients

A producer may say he applied 10-16-16-2. The fourth item is a trace element or micro-nutrient. Materials which may be listed in this section include trace fertilizer elements such as iron, boron, magnesium, etc. Record the name of the material, code column 1 according to the codes shown and record the quantity used per acre.

Many different trace elements may be used. These can be used on any crop and more likely on irrigated fields. The quantities applied are usually small, sometimes only one pound or less per acre.

SECTION T - FERTILIZER

Column 4

For all materials reported, we need to record the acres to which this material was applied. It may have been applied to all the acres or only a portion of the acres. If a fertilizer was applied to the same acreage more than once, add the acreage for each application. However, remember that the type of fertilizer and the application rate must be the same to allow acres to be added together.

Many fertilizer companies (and private consultants) conduct field soil tests and may recommend slightly different fertilizer applications for each field, based on the soil analysis. The farmer may have a set of receipts showing quantities and timing of fertilizer applications separately but obtain the farmer's best estimate of the average composition of fertilizer, and adjust the acreage to reflect the number of applications.

In line 1 of the example, the operator reported using 75 pounds per acre of 16-20-6 on 200 acres, but he applied it twice to 50 acres at the same rate, hence we recorded a "250" in column 4.

Column 5

For materials containing N, P, and K and lime and gypsum, record the cost of custom application only in column 5. Data on the cost of these materials is not needed. These prices will be obtained from NASS' "Agricultural Prices" release. If the material is applied by the operator, column 5 should be left blank.

****

Note: When a material is custom applied, this operation should be excluded from Section X (Field Operation), page 31. When a material is applied by the operator, this operation should be included in Section X.

****

SECTION T - FERTILIZER

Also leave column 5 blank if the material was custom applied but the operator cannot divide the cost between materials and application costs.

If trace minerals are applied, they are generally mixed with the N, P and K fertilizer and are not applied separately. Do not double count any application costs already reported for N, P or K.

U PESTICIDES — BARLEY U

1. How many acres were treated with—*[exclude seed treatments]*

— acres —

1a. herbicides?	423
1b. insecticides?	424

2. *[if 1a and 1b BOTH none, go to 4, else, ask for products used in chronological order. If 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

3a. Was it applied before (code = 1), during (= 2) or after (= 3) planting? *[enter code]*	3b. What was applied? *[use codes below]*	3c. Was it custom applied? *[enter code]*	3d. How many TOTAL acres were treated? 1/	3e. How was it applied? *[broadcast-ground = 1, broadcast-air = 2, in-furrow = 3, band in/over row = 4, directed spray = 5, irrigation water = 6, spot treatment = 7]*
428	429	430	431	432	433	434
435	436	437	438	439	440	441
442	443	444	445	446	447	448
449	450	451	452	453	454	455
456	457	458	459	460	461	462

1/ Total acres times the number of applications.

— acres —

4. How many acres of barley received no pesticide treatment in 1987? 518

HERBICIDES

Ally 100
Avenge 101
Brominal, Buctril 102
Bronate, 3+3 Brominal 103
Carbyne 104
Far-Go 105
Glean 106
Harmony 107
Hoelon 108
MCPA 109
Roundup 110
Treflan 111
2, 4-D 112
Other 199
[specify] _____

INSECTICIDES

Di-syston 200
Dylox 201
Ethyl parathion 202
Furadan 203
Guthion 204
Malathion 205
Methyl parathion 206
Penncap-M 207
6 + 3 (ethyl + methyl parathion) 208
Other 299
[specify] _____

SECTION U - PESTICIDES

DEFINITIONS

Herbicide - a chemical agent used to destroy or inhibit weed growth.

Insecticide - a chemical agent used to destroy insects.

Items 1a and 1b

Record the number of acres to which herbicides and insecticides were applied.

Item 2

This screens to determine if no herbicides and insecticides were applied. If so, go to item 4.

Item 3a

Herbicide products can be applied before, during or after planting. Insecticide products are generally applied during or after planting. ASK the respondent to start with before-planting treatments then go through the sequence ending with after-planting treatments.

Before Planting

The herbicide or insecticide product is applied to the field before the barley is planted. This may occur the same day or week or several months before planting. If a tillage implement is used to incorporate the herbicide or insecticide into the soil, be sure to record it in the field operations section (Section X).

During Planting

The KEY is that the herbicide or insecticide is applied to the field during the planting operation. This may be accomplished with spray tanks mounted on the side or rear of the tractor. Insecticides are generally placed in a box on the planter and applied to the soil through a separate tube.

DO NOT RECORD SEED TREATMENTS. Most barley seed is treated with insecticides and fungicides by the seed company prior to packaging and sale to farmers.

SECTION U - PESTICIDES

After Planting

The herbicide or insecticide material is applied after the planting operation is completed. They could be applied a few days or several weeks later. Herbicide materials applied after planting but before weeds emerge kill the seedling as it germinates. Herbicides applied after the weeds have emerged are applied to the foliage and the plant is killed by translocation. Insecticide materials are applied to control foliage feeding insects such European barley borer, barley earworm or fall armyworm.

Item 3b

Most of the herbicide and insecticide products used in barley production are listed in Section U, page 28. If the respondent indicates a product not listed, record under OTHER and specify the products trade name. This will enable later identification of the product. The product code or codes are to be recorded in columns 2, 3, and 4.

Most herbicide and insecticide applications used in barley production are applied to the field as single products, HOWEVER, 2 or more individual products are mixed in the spray tank and applied to the field. In addition, there are also brand name products that contain 2 or more active ingredients.

DO NOT confuse tank-mixes and packaged premixes.

TANK-MIXES -- on the same line record the product code for each separate material mixed in the spray tank. If the tank-mix of Avenge and Brominal was the first application made to this field you would record on line 1 -- code 101 in column 2 and code 102 in column 3.

PACKAGED PREMIXES -- these are products where the manufacturer has taken individual active ingredients and combined them in a container for sale to farmers. Examples include Bronate/3+3 Brominal.

SECTION U - PESTICIDES

Each one of these premixes has been given a unique code on the questionnaire. If the farmer used the premix Bronate/3+3 Brominal you would record code 103 in column 2.

Item 3c — Code a YES= 1 or a NO = 2 if the product was custom applied.

Item 3d — Record the TOTAL acres treated with the product or tank-mix. If the same herbicide or insecticide product is applied to a field more than once, multiply the acres treated by the times applied and record the TOTAL acres in 3d (col. 6). For example, if 2,4-D was applied 2 times to 100 acres, record 200 acres in 3d (col 6.).

Item 3e — Herbicide and insecticide materials can be applied as broadcast treatments using either ground equipment or an aircraft, or in-furrow with the barley seed. Some farmers may apply material through the irrigation system.

BROADCAST treatments are when the entire surface area of the field is sprayed with a herbicide or insecticide product. Broadcast application is the most widely used method for applying herbicide products used in barley production.

SECTION U - PESTICIDES

IN-FURROW treatments are infrequent but are sometimes used for insecticides applications. The product is placed in the seed furrow or over the top or to the side of the seed row at planting time through a separate attachment on the drill. DO NOT confuse this with seed treatments where the seed surface is coated with a pesticide product by the seed company before the barley seed is sold to the farmer.

SEED TREATMENTS are not to be recorded.

SPOT treatments are when the herbicide or insecticide is only applied to a portion of the field. Spot herbicide applications are generally made to control problem weeds such as thistle, leafy spurge, quackgrass, etc. Spot insecticide applications are sometimes made to control grasshoppers in the edges of the field.

Item 4

Record the total acres of barley which received no pesticide treatments in 1987.

V TRACTORS — BARLEY V

1. Now I would like to list the make and model of all the tractors used on the barley crop.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors provided by custom operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					— [If OWNED] —		
LINE NO.	[enter make and model]	WHAT WAS IT'S— Drive? [enter code 2WD =2 4WD =4 Craw =5 4W ASST =6]	PTO HP?	Fuel type? [enter code]	How many total hours was it used for all uses?	Was it bought since JAN. 1, 1981? [If YES ——————] When was it bought?	What did it cost?
1	Int. 4366	569 4	570 195	571 3	572 1000	573 83	574 50000
2	JD 4050	575 2	576 100	577 3	578 600	579 84	580 41500
3	JD 4020	581 2	582 95	583 3	584 1000	585 — —	586 —
4		587	588	589	590	591 — —	592
5		593	594	595	596	597 — —	598
6		599	600	601	602	603 — —	604

SECTION V - TRACTORS

Purpose — The purpose of this section is to inventory all tractors used for the production of barley on this operation in 1987.

Item 1 — Include tractors that were owned, rented, leased, or borrowed. Tractors owned in partnership should also be included. Exclude tractors used exclusively for custom work.

Column 1 — The pre-printed line number will be used to identify tractors used for various machine operations recorded later in Field Operations, Section X, page 31.

Column 2 — List the make and model for each tractor, such as John Deere 4050. It is important that you get both accurately as the horsepower may need to be verified in the State office based on the make and model. If more than 6 tractors were used, record these tractors at the bottom of the page.

Column 3 — Enter the code for the type of drive for the tractor lists in column 2.

Type of drive:

2=2WD - Two wheel drive - conventional rear wheel drive.
4=4WD - Four wheel drive - power is transmitted to all four wheels, full-time.
5=CRAW-Crawler - track-type tractor.
6=4W ASST - Front wheel drive option or front wheel assisted. Power can be shifted to the front wheels for four wheel drive as needed.

Column 4 — Record the horsepower (PTO) rating. If the operator does not know the rating, obtain his best estimate and write note in margin.

Column 5 — Enter the code for the type of fuel used.

Gasoline = 2
Diesel = 3
LP gas = 5

SECTION V - TRACTORS

Column 6 — Record the operator's best estimate of the total hours the tractor was used in 1987 for all purposes. Leave blank if the tractor was leased, rented or borrowed.

Columns 7 and 8 — If any of the tractors listed in column 8 were purchased, new or used, by the operator since January 1, 1981 record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

W TRUCKS — BARLEY W

1. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for barley.]* 503 2

1a. What was the average number of miles driven per pick-up for **farm use only**?.....miles 504 6500

2. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for the production of barley.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom operators.)

TRUCKS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[if OWNED]*		— *[if OWNED]* —	
LINE NO.	*[enter make]*	Fuel type? *[enter code]*	Size? *[enter code single axle =1 tandem axle =2 semi =3]*	What were the total miles driven for FARM USE?	What percent was for barley?	Was it bought since JAN. 1, 1981? *[if YES ——————]* When was it bought?	What did it cost?
7	GMC	605 2	606 1	607 4000	608 50 %	609 82	610 5000
8	White	611 3	612 3	613 7500	614 100 %	615 — —	616 —
9		617	618	619	620 %	621 — —	622
10		623	624	625	626 %	627 — —	628
11		629	630	631	632 %	633 — —	634
12		635	636	637	638 %	639 — —	640

SECTION W - TRUCKS

Purpose — The purpose of this section is to inventory all trucks used for the production of the barley on this operation in 1987.

Item 1 — Record the number of pick-up trucks that were owned, leased, rented or borrowed.

Exclude pick-up used by custom operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

Item 1a — Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 2 — Include trucks that were owned, rented or borrowed. Trucks owned in partnership should also be included. Exclude trucks used by custom operators who supplied their own trucks or trucks owned by the operator and used exclusively for custom work. Exclude pick-ups.

Column 1 — The pre-printed line number will be used to identify trucks used for various machine operations recorded later in Field Operations, Section X, page 31.

Column 2 — Enter the make of each truck to ensure that all trucks used during 1987 for the production of barley. For ease of enumeration, you may wish to progress from smallest to largest.

Column 3 — Enter the code for the type of fuel used.

Gasoline = 2 Diesel = 3 LP Gas = 5

Column 4 — Enter the size code for each truck.

Single axle = 1
Tandem axle = 2
Semi = 3

SECTION W - TRUCKS

Column 5 — Record the operator's best estimate of the total number of miles driven in 1987 for farm related purposes for each truck listed. If the truck was rented or borrowed, then leave this column blank.

Column 6 — Record the operator's best estimate of the percentage of miles driven in column 4 used for the production of barley.

Column 7 and 8 — If any of the trucks listed in the column 2 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

X FIELD OPERATIONS — BARLEY X

1. Please describe field work performed, by machine only, on the barley, beginning with the first activity after harvest of the preceding crop. (Include all field operations. Include chemical and fertilizer applications self-applied. Exclude all custom operations.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[enter field operation or equipment used]	*[enter machine code if used]*	What size was it?	*[enter unit] 1/*	*[enter line no. of tractor or truck used] 2/*	How many acres were covered? *3/*	*[if OWNED ——————]* Was it bought since JAN. 1, 1981? NO-*[list next operation.]* YES-*[continue.]* When was it bought?	What did it cost?
Plow	641 6	642 4	643 3	644 1	645 300 ~~200~~	646 — —	647 —
Disk	648 11	649 18	650 1	651 1	652 400	653 — —	654 —
Plant	655 105	656 18	657 1	658 3	659 ~~310~~ ~~210~~	660 81	661 750
Fert	662 77	663 —	664 —	665 658	666 —	667 82	668 250
Herb	669 91	670 —	671 —	672 658	673 —	674 84	675 200
Fert	676 70	677 35	678 1	679 2	680 200	681 — —	682 —
Combine	683 122	684 20	685 1	686 99	687 200	688 — —	689 —
~~Plow~~	690 6	691 4	692 3	693 1	694 100	695 — —	696 —
Disk	697 16	698 18	699 1	700 2	701 200	702 — —	703 —
~~Plant~~	704 100	705 18	706 1	707 3	708 100	709 81	710 75
Fert	711	712	713	714	715	716 — —	717
Combine	718 120	719 20	720 1	721 99	722 —	723 — —	724 —
	725	726	727	728	729	730 — —	731
	732	733	734	735	736	737 — —	738
	739	740	741	742	743	744 — —	745

1/ [Feet = 1, Row = 2, Moldboard = 3.]
2/ [For horse or mule drawn, enter 77; for self-propelled enter 99.]
3/ [Record total acres for all times covered, i.e., disked 100 acres 3 times = 300 acres covered.]

Supplements	
009	—

SECTION X - FIELD OPERATIONS

Purpose

The purpose of this section is to establish what machinery and equipment was used by this operation for the production of barley.

Field Operations or Equipment

Crop Abandonment and Acreage Reduction Programs

If any of the barley was abandoned due to natural causes, all operations performed on the barley until (and except) plowing under should be included but not the operations of preparing the seedbed or planting of a replacement crop not enumerated. For instance, if a producer planted 125 acres of barley, and later replanted 60 acres to soybeans, you should show field operations for planting 125 acres plus all the associated tillage but exclude the seedbed preparation of planting of the 60 acres of soybeans. You should follow through to harvest on the remaining 65 acres of barley, but drop the 60 acres that were replanted to soybeans.

If he re-seeded to barley, all operations would be reported since this is still barley.

Field operations on barley which was later destroyed to comply with a government program or the operations after compliance should be excluded here.

For example, if a producer planted 100 acres of barley but later destroyed 15 acres, only the operations on the 85 acres that were kept in production should be counted.

This section should be completed by having the operator describe all of the field operations performed on the barley. A machine code sheet is provided for you to give to the respondent. The machine code sheet (SC-4) contains a listing of most machines used in field operations. Let the respondent give you the codes of the machines he used.

SECTION X - FIELD OPERATIONS

Column 1 — Record the operator's oral listing of the machines used, such as plow, disk, harrow, combine, etc. If any machine operation is reported for which a machine code is not available, be as descriptive as possible in the margin as to the machine used or ask the farmer if the machine could be describe as same type of one of the listed machines.

Column 2 — Using the machinery list provided SC-4, (yellow), enter the proper code for the machine. Since the operator has a copy of the machinery list, he may choose to find the codes for you. If two machines are pulled together (in tandem), list the first implement in column 2. The second or third tandem equipment requires additional lines and are discussed on the next page.

SECTION X - FIELD OPERATIONS

Columns 3 and 4

Enter in column 3 the size of the equipment listed in column 1. Enter both the width of the area covered by the equipment on one pass over the field and the code specifying the unit of width. Size relates to the swath covered by the machine and not necessarily the structural width of the equipment. For instance, a broadcast fertilizer spreader may be only 6 feet wide but it spreads fertilizer over a swath of 30-40 feet. In this case, 35 feet would be an appropriate entry.

Column 5

Enter the line number of the truck or tractor from the previous sections used to pull the equipment. If the equipment were self-propelled, enter a "99". If two tractors were used simultaneously to pull one piece of equipment, write a note at the bottom of the page. If horses or mules were used to pull the equipment, enter a "77".

Column 6

Record the total acres covered for all times this machine was pulled by the truck or tractor listed in column 5. For example, if 100 acres were disked 3 times enter 300 acres in column 6.

For land forming equipment, column 6 should be left blank. These machines are used to make or close ditches and the entire field acreage is not covered. All that needs to be recorded is which of these specific machines are used on the barley.

Columns 7 and 8

If any of the equipment listed in column 1 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

SECTION X - FIELD OPERATIONS

Questions recorded in this section with regard to fertilizer and chemical applications should agree with that reported earlier in Sections C, page 7, and U, page 28. For example, if a fertilizer was reported in section C as self-applied, then the operation of applying this fertilizer should appear here. If in section U a chemical was reported as custom applied, then the operation of applying this chemical should not appear here. It may help to finish this section by asking the operator what operations, if any, were missed.

It should already have been noted that this year we are not subsampling within a crop. For example, all the COP questions refer to the average practice without regard to cropping practice. A barley farmer may have both irrigated and non-irrigated acres on the same operation. If the operation has more than one cropping practice for the same crop and the field operations are different for each, start with the largest acreage and get the pertinent information. Then choose the next largest acreage and continue. If the field operation and the machines used are identical, go to the earlier line describing the machinery and add in the additional acres. There are two very important aspects to this section: 1) we need to identify every machine and the total acres it covered; and 2) we need to know the cost if purchased after January 1, 1981.

In this example the farm had 300 acres of barley, 200 were irrigated and 100 were dryland. Field operations were slightly different between the two. To handle this type of mixed situation, start with the largest acreage or in this case the irrigated acres.

SECTION X - FIELD OPERATIONS

The farmer says he plowed all 200 acres with a regular, 4 bottom plow, using the International tractor. To code this, write "plow" in column 1 and enter machine code 6 in column 2. Enter 4 in column 3 and 3 in column 4 to show the size as 4 bottoms or moldboards. The tractor was from line 1 on page 30 so enter a "1" in column 5. The farmer plowed all 200 acres once, so enter 200 in column 6. He bought the plow prior to January 1, 1981, so leave columns 7 and 8 blank.

The farmer then reported the other operations, including tandem for the irrigated acres and these are shown in the example.

Now go to the non-irrigated acres. When the farmer reports an identical (same machine and tractor) operation to one already listed, go to the line where it was originally listed and add in the additional acres. If the machine or tractor are <u>not</u> identical to what was previously listed, list it separately.

Begin with the first operation performed after harvest of the preceding crop. This will probably consist of a stalk shredding or a tillage operation depending upon the previous crop. This will be performed in the fall of 1986 or the spring of 1987 and after harvest of the 1986 crops. In the case of crops grown on fallow, the field operations listed should include the fallow operations. Fallow is defined as 12 months without a harvested crop.

<u>Exclude</u> custom operations and operations involving hauling of the crop. <u>Include</u> the raking, baling and hauling of straw bales, where applicable.

SECTION X - FIELD OPERATIONS

Tandem Field Operations

In many cases a farmer will perform 2 or more field operations at the same time. For example, in the 1984 FCRS for rice, it was not uncommon to find a spike tooth harrow connected to a field cultivator, both pulled simultaneously by the same tractor. Fertilizer and chemical applicators are other examples of common tandem operations.

In this year's FCRS we are recording tandem operations the same as in 1986. The reason for this is that by asking equipment purchase prices (column 8), we need each separate item of equipment more fully identified.

Therefore, when the farmer reports a tandem field operation:

1. Record the first piece of equipment as you would any other piece.

2. On the next line, record the machinery code of the second piece of equipment (the tandem operation) in column 2. Skip columns 3 & 4.

3. In column 5 enter the cell number where the line number of the trucks or tractor pulling the pieces is recorded. This will tell us which trucks or tractor is providing the power. Skip column 6.

4. Enter the year purchased and purchase price, if applicable.

5. If a third, fourth, or more pieces are used in tandem, repeat 2, 3, and 4.

Be sure information and each column is obtained (including columns 7 and 8 if the equipment was purchased since January 1, 1981) for every piece of equipment used to grow the barley.

SECTION X - FIELD OPERATIONS

In completing this section, it is recommended to start after harvest of the preceding crop and go through in order of the operations performed through to harvest of the barley. However, if you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine are the same.

The table has space for only 15 pieces of equipment. If more space is needed, use the worksheet (WS-7) provided.

Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

SECTION X - FIELD OPERATIONS

DESCRIPTION AND CODES OF FARM IMPLEMENTS

PLOWS

Chisel Plow (1)	A primary tillage machine either integral or trailing that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used ranging from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 10 inches.
Coulter-Plow (2)	A multi-purpose machine with one or two ranks of coulters, usually smooth or notched rim, followed by two or three ranks of chisel standards with a wide selection of ground engaging tools. The main purpose of the coulters is to cut through the crop residue in order to reduce plugging of the chisel standards. This is a primary tillage tool.
Subsoil Plow-Subsoil Chisel, V-Ripper (3)	A heavy tillage tool either toolbar mounted or trailing that has from one to 13 heavy shanks often with a parabolic curve. These shanks standards usually are fitted with replacement chisel points and can penetrate the soil up to 22 inches. The standards can be fitted with various auxiliary tools such as knives or lister bottoms. This allows the machine to deep-rib the soil and form beds at the same item.
Deep Ripper (4)	Similar to V-Ripper. For deep plowing.
Disk Plow (5)	A machine that does essentially the same work as the moldboard plow but has from one to ten large discs set at an angle to the direction of travel. The discs are mounted on individual beams or shanks. It is used in hard ground and where a regular moldboard plow does not scour well.

SECTION X - FIELD OPERATIONS

Plows (Continued)

Moldboard Plows (6 & 7)	A machine with one or more (up to 18) curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble. Moldboard plows may be made with one set of moldboards or with two sets. The two-way plows have two sets of moldboards, one left-handed and the other right. This allows the plow to be rotated so that all of the soil can be turned in the same direction. This eliminates dead furrows etc. This plow is especially used in irrigated areas to help maintain the level and slope of a field for furrow or bench irrigated.
Stubble-Mulch Plows (8)	Usually a tool bar or trailing machine with one or more standards that can be fitted with sweeps of various angles of penetration and several widths. Does not turn the soil over. Slightly mixes soil and stubble. (Noble blade).
Disk-Chisels (10)	A multi-purpose machine essentially a single disk followed by two or more ranks of chisel shanks.
Offset Disk Light-or-Heavy Duty (11 & 12)	A simple offset disk is the equivalent of one side of a tandem. All discs in each rank throw the soil in the same direction. Offset disks may vary in size from five feet to 35 feet or larger. The larger offsets have several disc units in each rank in order to gain flexibility. Types of disc blades may be cone or spherical and have diameters as large as 30 inches for extra heavy duty conditions. Offsets have several disc units in each rank in order to gain flexibility. Type of disc blades may be one or spherical and have diameters as large as 30 inches for extra heavy duty conditions.

SECTION X - FIELD OPERATIONS

Plows (Continued)

One-way (Disk-Tiller) (13)	A machine used mainly in the plains and Northwestern areas as a primary tillage tool. It mainly consists of a series of spherical disc blades, 20-60 inches in diameter, set on a single solid shaft. This machine throws the soil all in one direction. Sizes range from ten to twenty feet with multiple hitches available. One-ways have been replaced to some extent by chisel plows in many areas.
Single Disk (14)	Two sets of disc blades that throw the soil out from the center when angled. Size may vary from five to 40 or more feet. Used primarily as a secondary tillage tool. Most single disks have been replaced by tandems, offset or chisel plows.

DISKS (DISK - HARROW)

Tandem-Disk (Regular, Plowing or Heavy Duty) (15 & 16)	Two gangs of disc blades hitched in tandem; the front set throws the soil outward and the rear set throws it inward - width of cut may vary from 5 feet up to 35 or more feet. The blades may have different spacing between blades. 7, 9, and 11 inches are most common. The diameter of each blade may vary from 16 to as much as 24 inches. The shape of each blade may be either cone or spherical in shape. The cone blades are mainly for use in heavy soil conditions for primary tillage. These machines may be integral, 3 point hitch mount, trailing, double tandem or other configurations.

CULTIVATORS

Field Cultivator (20)	An implement similar to the chisel plow except of lighter construction and with the shanks closer together, about six inches overall. The shanks are usually of a spring steel, vibra-shank type. Ground engaging tools may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

SECTION X - FIELD OPERATIONS

Furrow-out Cultivator (21)	A row cultivator of the shovel variety where a fairly large shovel is placed to operate between the rows and open a furrow for irrigation. Thus, weeds are cultivated out and irrigation ditches are formed in one pass.
Rotary Hoe (22)	A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap. Rotary hoes are usually pulled at speeds of 6 mph and above and may be hitched to cover up to 50 feet or more.
Row Cultivator (Shank, Rolling, Lister, Disk) (23 & 24)	An implement with shanks arranged in such a manner that rows of crops can pass through without damage while the weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from one to twenty-four rows. Most are rear tool-bar or front mounted on tractors.
Field Conditioner, Seed Bed Conditioner, Soil Conditioner, Scratcher (30)	A lightweight wheeled tillage tool, usually two or three bars or ranks of spring steel teeth spaced 12-18 inches apart on the bars. Tine-tooth attachment available 30-60 feet wide.
Finishing Harrow (31)	Spiral cutting blade reels followed by spike teeth or field cultivator shanks, (2 or more ranks) possibly another rank of spiral knives and a smoothing board of wood or steel.

SECTION X - FIELD OPERATIONS

Flex-Tine Tooth (Coil Tine) (32 & 33)	Usually 5.5 to 6 foot sections of five bars or ranks. Teeth are spring steel about 5/16" in diameter and usually about 10 inches long. Teeth are formed in a spring coil and bolted to the bar, or set in rubber and bolted to the bar. Usually 50 teeth for 6 foot sections. At field speed, 3 1/2-5 mph, the tines vibrate in a circular motion to break clods, smooth seedbeds and kill weeds. Can be hitched up to 10 sections in one unit.
Rail, Pipe, Plank, Etc. (34)	Makeshift device used alone or in tandem with another implement to smooth soil or crunch clods.
Rod Weeder (35)	A steel rod usually square, 7/8 or 1 inch diameter-rotating in bearings on shanks. Rotation of rod is in reverse direction. Power for rod rotation is either from the drive wheels on the machine or hydraulic from the tractor. Some makes have a free-wheeling rod. Sections are normally 10 ft. wide but can be found to make-up units to 80 ft. Used in summer fallow areas and on relatively rock-free ground.
Roller Harrow (36)	Two ranks of packer rollers (smooth "vee" toothed "vee", crow foot, sprocket, birdfoot, or serrated type). Two or more ranks of chisel type teeth in between. Packer roller wheels turn independently of each other. 10-16 feet in size.

HARROWS

Spike Tooth (37)	Usually 5-6 foot sections of five bars or ranks with 7-8 steel spikes or teeth per bar. Angle of spikes is adjustable. Can be hitched up to 8 or 10 sections in one unit.

SECTION X - FIELD OPERATIONS

Spring Tooth Harrow (38)	Usually built in sections - 3-4 feet in width. Some wheeled models have a ten foot center section with wings to make up to a 57 foot machine. Teeth are spaced 12 inches on center on 3 bar models and 18 inches on 4 bar models. The teeth are spring steel and about 1 3/4 inches wide with a single or double curve. Points are replaceable on many models. The wheel-less, drag models have metal skids for transport and depth control.

BEDDERS

Disk or Lister Bedder (41)	An implement, usually 2 to 8 row used to make beds for seed planting using either disk blades or lister bottoms. Can be used with planters to plant either on the bed or in the furrow. Also used to break or "bust" the beds.
Bedder-Shaper (42)	A bedder with a forming device that flattens or shapes the bed in preparation for seeding. Shapers are sometimes used as a single toolbar implement. Planters may be attached.
Lister (Middle Buster or Breaker) (43)	Same as bedder but lister (plow type) bottoms. Different types of bottoms available (hard land, general purpose, soft land and planter sweeps).
Rotovator-Bedder (44)	Same as disk or lister bedder except uses PTO powered knives to form beds.
Seed Bed Roller, Flat Roller (45)	Flat or concave rim wheel rollers. Used to pack soil in rows immediately before or after planting.

SECTION X - FIELD OPERATIONS

Subsoil-Bedder (Ripper-Hipper, Tiller, No-till Disk Bedder) (46)	Any type bedder either attached to a subsoil shank or as a separate bedder attached behind a subsoiler shank.

PACKERS

Culti-Packer (Pulverizer) (50)	An implement with a series of heavy crowfoot, inverted V-rim or serrated rim wheels running independently on a shaft. May be a single or tandem unit. Main uses of this implement are to firm the seed beds and reduce the size of clods and lumps of soil.
Plow Packer (51)	A packer designed to be pulled behind a moldboard plow with or with our a drill. Packer unit, may be spiral rod, crowfoot, inverted V, cogged or other.
Roller Packer (52)	Smooth roller or flat wheels on a shaft used to firm the seed bed and crush clods. May be home-made.

SECTION X - FIELD OPERATIONS

MISCELLANEOUS TILLAGE

Landall, Do-all (60)	A multi-tillage machine made up to 2 to 4 ranks of shovels, disks, coulters, blades or basket rollers.
Mulch-Treader, Picker-Treader (61)	Implement with tined wheels on a gang shaft that can be angled like a section of a tandem or single disk. Can be set up as a separate machine or as an attachment behind a stubble mulch plow. Tined wheels resemble rotary hoe wheels.
Roto-Tiller (62)	A series of bolo or slicer blades attached to a rotating shaft. Used as a primary or secondary tillage implement. Can be used in tandem with planting equipment as a minimum-till system. Mounted motor or PTO powered.
Roterra, Lely (63)	A machine with several sets of counter-rotating vertical tines that rotate with an overlapping action. The result is a stirring action; top soil remains on top, the soil is not turned over. Various attachments such as planters and sprayers are available. Tillage, planting, pesticide application and incorporation is possible in one trip.
Sand-fighter (64)	An implement used as an aid in controlling wind erosion. Essentially a shaft or bar with a frame and bearings to allow the shaft to rotate. Blades or teeth, about ten inches long and 2-3 inches wide, are welded to the shaft at intervals. The teeth enter the soil as the machine is pulled forward. This digging action roughens the soil and retards wind erosion. Sizes range up to 24 rows (72 ft).

SECTION X - FIELD OPERATIONS

FERTILIZER APPLICATORS, TRACTOR MOUNTED

Anhydrous (70)	Not very common. Supply tank tractor mounted with chisel shanks and injections on tool bar.
Dry (71)	(Includes lime and gypsum applicators) - Three point hitch mounted single or dual spinners with supply tank. Pneumatic - air delivery system through hoses to soil surface or below surface with hollow hoe shanks. The supply and distribution system is mounted on a tool bar. Drill Type- Drill type hopper with agitator and metering device to drop material on the surfaces of the soil.
Liquid (72)	Usually spray nozzles or injector units on a total bar. Tanks mounted on tractor.

FERTILIZER APPLICATORS, TRAILER MOUNTED

Anhydrous (73)	Usually a 2 or 4 wheel supply trailer feeding a chisel plow with injector tubes on each shanks. Can be high or low pressure type.
Dry (74)	(Includes lime and gypsum applicators) - Distributes the material by revolving spinner, pneumatic system through tubes to soil surface or below and the agitator metered bottom drop drill type.
Liquid (75)	Various configurations of two or four wheel trailers. Most use a boom with spray nozzles to surface or foliage apply the material. PTO or mounted engine powered.
Aerial, Fixed or Rotary Wing (76)	Airplanes or helicopters with fertilizer distribution attachments. Not too common.
Attachment to Implement (77)	Usually drop dry type attached to a drill or planter but may be liquid or gas type that is injected into the soil.
Manure Spreader (78)	Any type, apron with rear beater, flail or liquid spreader with pump spreader.

SECTION X - FIELD OPERATIONS

Self-Propelled (79)	A self-powered implement; may spread dry or liquid fertilizer, usually dry.
Truck Spreader (80)	Any method of application that is mounted on a truck. These usually are dry-broadcast type spreaders.

CHEMICAL APPLICATORS

Aerial (Fixed or Rotary Wing) (90)	An airplane or helicopter fitted with tanks and a spray boom to apply pesticides at very low altitudes.
Attachment to Implement (91)	Granular or liquid spray unit attached to a tillage, cultivator or seeding implement.
Large Self-Propelled or Truck (92)	Large converted truck or specially built machine to spray liquid or apply dry chemicals.
Motor Cycle Sprayer (93)	A small spray unit mounted on a 3-wheel motor vehicle. Spray with a boom, with hand held guns or wiper type. Mostly used for spot spraying.
Small Self-Propelled Sprayer (94)	Light weight self-propelled implement, (Spra-Cope) to be used on field crops such as wheat or barley.
Small Truck (Pick-up with Slide-in unit, Skid-in) (95)	Spraying mechanisms can be liquid boom, wiper, recirculating, micro-spray or dry spinner or tube delivery.
Tractor Mounted (96)	Supply tanks and spreading mechanism mounted on a tractor. Material may be spread by booms, recirculating sprayers, rope or wick wipers, row type nozzles or air blast. Facilitates spraying while cultivating.

SECTION X - FIELD OPERATIONS

Trailer Mounted (97)	Supply tanks and spreading mechanism mounted on a trailer pulled by tractor or other power vehicle. All types or spreading mechanisms.

DRILLS AND SEEDERS

Aerial Seeding (100)	Seeding by either fixed or rotary wing aircraft. Used some in rice areas and experimentally with other crops.
Broadcast Seeder (101)	Spinner type seeder, either tractor mounted (PTO or electric) or trailer mounted (wheel driven).
Drill-Air Delivery (102)	Same as conventional drill except seed is taken from a supply box through a manifold and blown by air through tubes to the seeding points.
Grain Drill (Hoe, Lister Shovel) (103)	Use lister bottoms, shovels, or hoes to prepare soil for seeds.
No-Till, Minimum-Till Drill, Zero- (Conventional) (104)	Usually fluted or ripped coulters that open up narrow prepared soil areas for the single or double disc drill shoes to deposit the seed in otherwise untilled soil. Herbicide attachments are available. Modified chisel plows with coulters also used.
Grain Drill (Disk) (105)	Seeder with seed box, metered seed feed through tubes to single or double disc openers. Tubes spaced 7", 9" or 10". May have fertilizer attachment.
Press Drill (106)	Drill with disks or lister bottoms with press wheels to firm soil around seed.

SECTION X - FIELD OPERATORS

Lister Planter (111)	Planter mechanism either plate type or plateless, air or otherwise actuated. Seed is deposited in furrows made by lister bottoms either hard land or soft land type (may be equipped with fertilizer, insecticide, and/or herbicide attachments).
No-Till, Min-Till Planter (112)	Fluted coulters, rippled coulters and/or subsoil shanks used to open the untilled soil and prepare a narrow 2-4 inch tilled area for the planter units to deposit seeds. Usually used in conjunction with fertilizers, herbicides and insecticides.
Row Crop Planters, All Crops Planter, No Attachments (113 - 114)	Plate or plateless metering devices that drop seed through a boot or shank in a seed furrow or bed opened by a shoe or disc. Seed is covered by a press wheel. Planters may be trail type - wheel carried or tool bar mounted. Two to twenty-four rows.

SECTION X - FIELD OPERATIONS

HARVESTING EQUIPMENT

Combine, All Types (120 - 124 & 127 - 131)	An implement, self-propelled, PTO or mounted motor, that harvests crops either standing or in some cases picked up from windrows or swaths. The crop (grain) is separated from the straw, husks etc., straw, stalks, cobs and husks; cleaned and elevated into a holding tank for delivery into a truck, wagon or grain cart at intervals. Combines may be mounted motor or PTO driven; self-propelled with 2 wheels, 4 wheels or track drive. They can be set up for rice, barley, peanuts, beans, wheat and all small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups. They may be fitted as hillside, sidehill or level land machines. Special barley and other row crop heads are available.
Windrower-Swather (125 - 126)	A machine, either self-propelled or PTO, that cuts the standing hay or ripened grain with a reciprocating sickle aided by a revolving reel of four or more bats or sails. The cut material is deposited on a platform, either draper or auger type. The auger or drapers move the cut material either to the end or the center of the platform where it is discharged into the ground in a "windrow" or "swath". The hay swather may have metal and/or rubber rollers through which the hay passes. This "conditions" or "crimps" the hay to facilitate more rapid and uniform curing.

HARVESTING EQUIPMENT - COTTON

Chopper (stalk cutter) (140)	A machine with a ground driver reel with cutting blades, either angled or spiral, used to chop or cut cotton, barley or other heavy stalks. Also does minor soil preparation.
Module builder (141)	A four-sided form having an openable rear door. It has a traversing, mechanical compacter and compressor seed cotton into high-density stacks.

SECTION X - FIELD OPERATIONS

Cotton Gleaner (Rood) (142, 145)	A cotton harvesting machine, usually ground driven or PTO, pulled by a tractor that gleans or picks up loose picking or stripping or perhaps before harvest began.
Cotton Pickers (143 - 144)	A 2 to 4 implement usually tractor mounted or self-propelled that picks mature cotton from the bolls thru an intricate arrangement of spindles and doffers and deposits and cotton by means of an air stream into the holding basket. When full, the basket is emptied into trailer or cart for delivery to the gin at once or to a module builder. Pickers may make several trips over a field as ripening proceeds.
Cotton Strippers (146 - 148)	Made as self-propelled, PTO, pulled, or tractor mounted machines that pull or strip all of the bolls from the plant at one time over. Stripping is accomplished by rotating brushed and rubber flaps. Strippers may be 2-6 row or a platform type in some instances.
Trailer (149)	Used for transporting seed cotton form picker or stripper to gin.

HARVESTING EQUIPMENT - PEANUTS

Peanut Combine (150)	A peanut harvesting machine that picks up the windrow of peanuts left by the digger-shaker or shaker-inverter and separates the peanuts from the vines. The peanuts go into a holding tank. Only PTO models are available. Peanut combines are used only on peanuts.
Peanut Digger-Shaker (151)	A machine, usually 2 or 4 row, that lifts the peanuts, vine and all; by means of long angled knives, from the soil. The soil is shaken from the vines with reel or chain type shakers and vines are deposited in a windrow.

SECTION X - FIELD OPERATIONS

Peanut Digger Shaker-Inverter (152)	Same as digger-shaker except vines in windrow are inverted so the peanuts lay on top of the vines.
Peanut Reshaker-Conditioner (153)	A machine used to fluff-up the windrows to enhance drying or conditioning.
Vine Cutter (154)	A device for cutting peanut vines from roots.
Wagon (155)	A wagon for hauling peanuts; can be used for drying peanuts.

TOBACCO HARVESTING EQUIPMENT

Combine (1 row) (201)	A self-propelled or tractor drawn machine (1 row) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (2 row) (202)	A self-propelled or tractor drawn machine (2 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (4 row) (203)	A self-propelled or tractor drawn machine (4 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Once-over Harvester (204)	An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper or a last-over harvester.

SECTION X - FIELD OPERATIONS

Priming Aid (Looping on sticks) (205)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field take small bunches of tobacco and place the butt ends at both sides of tobacco sticks and then wrap twine around the bunches of tobacco until the sticks are filled.
Priming Aid (Field racking) (206)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in bulk racks used for curing.
Priming Aid (Field box filling) (207)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in big boxes used for curing.
Priming Aid (Other) (208)	Aid of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field or at the barns place tobacco for curing in other than machines 205, 206, and 207 above.
Trailer (Harvest) (209)	A tractor or truck pulled trailer used to carry tobacco from the field to the barn.
Transplanter (210)	A power-down transplanting machine is operated by a driver, and carries 2, 4, or 8 persons on "setters", who ride the machine and alternate in placing or guiding the plants into the mechanism which spaces them at the proper intervals in the row. The machine opens the furrow, dumps a measured quantity of water and draws the soil about the roots of the plants.
Tying Machine (211)	A machine that loops tobacco with an automatic tying or sewing machine. The tobacco leaves and sticks are placed on a moving conveyor belt which passes them under a sewing head. The leaves are attached to the stick by stitches at the butt end.

SECTION X - FIELD OPERATIONS

MOWERS AND BALERS

Amish Harvest (400)	Non-motorized device for harvesting hay.
Bale Wagon (401 - 402)	This tool can be simply a wagon or trailer with a wide flat bed used to haul bales. Likewise, it can be a self-propelled unit that picks up the bales and stacks them on the bed in a manner that allows the baler to be unloaded by power to form a compact stack of bales. PTO units are also available. Same units also are able to pick up the stacked bales for further transport.
Bale Loader (403)	A device, either ground or engine driven that picks up the bales from the ground and deposits the bales onto the trucks or trailer as it moves down the windrow of bales. Largely used for small rectangular bales but models for the large round bales are available.
Balers (404 - 407)	Balers pick the hay or straw up from a windrow and compact it into either round or square bales which may be small (40 - 125 pounds) or large (1000 to 2000 pounds). Balers may be motor mounted, PTO or self-propelled.
Rotary Mower-Cutter, Chopper (408)	A machine similar to a rotary lawn mower used largely to cut weeds and roadsides but may be used to harvest a crop for hay or to shred crop residue. Size range from 4 feet to 20 or more feet of cut when hitched in multiple units. Available in integral, semi-mounted and pull-type. Mostly PTO powered. Cuts by means by a rapidly rotating blade either rigid or flexible.
Mower Conditioner PTO (409)	Consists of a cutterbar, a reel, a pair of full-width conditioning rolls, and a deflector. Width ranges from 7 to 12 feet.

SECTION X - FIELD OPERATIONS

Mower Conditioner (410)	Self-propelled.
Disc Mower (411)	A mower with a number of cutting blades on rotating discs mounted on a bar. The discs are driven from the bottom by a series of flat gears. The entire bar and disks go under the crop as it is cut.
Drum Mower (411)	A series of rotary drums or cylinders with blades attached. The drums are driven by an enclosed gear or chain train from the top. PTO powered.
Flail Mower Shredder (Rotary Chopper) (412)	A machine that mows, cuts or shreds crops by means of steel blades or knives on a horizontal rotating shaft or drum. The high speed of the drum (about 1850-2000 RPM) cause the hinged knives to cut or shred the crop. Can be used to harvest hay or to shred crop residue. Range in size from 5 to 15 feet or more.
Sickle Mower (413)	A machine with a reciprocating cutting sickle that runs in a cutter bar with guards and ledger plates. Mowers may be 3 pt. mounted, semi-mounted, belly mounted or trail type. Usual sizes are 7 to 9 ft. sickle or cutter bars but some heavy cutters are only 5 foot.
Dump-Rake (414)	A series of large "C" shaped teeth attached a bar or frame. This frame can be raised or lowered alternately to pick up the hay and "dump" it into windrowers. Either ground or PTO powered. Sizes range from 8 to 32 or more feet.
Rake Side Delivery (415)	A rake with a four or five bar reel. This is set at an angle to the direction of travel. The reel rotates, either PTO or ground driven, in the opposite direction of the carrier or tractor wheels. This motion along with the angle sweeps the crop into a windrow on the left or the right. Raking swath is 7 to 9 feet.

SECTION X - FIELD OPERATIONS

Wheel-Rake (416)	A series of overlapping wheels, four to five feet in diameter with spring teeth on the rim of the wheels. The wheels are mounted on a bar or frame at 10 to 60 degree angle to the direction of travel. The wheels are turned by contact with the crop and the ground. The 5 wheel rake covers about 16 3/4 feet and the 7 wheel about 20 feet.
Stacker Mover (417)	A forklift-like device for moving hay stacks.
Stacker Automatic (418)	A device for compacting hay.

LAND FORMING OR SHAPING EQUIPMENT

Backhoe (500)	Large shovel or scoop operated with a mechanical arm. Often used for ditch digging.
Corrugator (501)	A device of various configurations that produces vee shaped indentions in the soil to aid in the distribution of irrigation water. The units may be mounted on a row cultivator for row crop or on a tool-bar for seeded crops.
Disk Border Maker (502)	Set of two single discs or two sets of 3 or more discs used to make borders for irrigation. Can be reversed to tear down borders. Usually mounted on a tool bar.
Ditch Closer (503)	A machine usually mounted on a 3-point hitch or on wheels pulled behind a tractor that pulls dirt together to fill in an irrigation or drainage ditch.
Ditcher (Vee Rotary) (504)	A machine either with a vee shaped blade or a rotary auger or fan that is used to cut field irrigation or drainage ditches. Either 3-point or trail mounted.

SECTION X - FIELD OPERATIONS

Float (505)	A device, usually homemade, that is used for minor rough levelling. Soil moving bars or blades may be made of wood or metal.
Land Plane-Leveler (506)	A machine used primarily to level land for irrigation or to improve drainage. This machine usually has two or more sets of wheels on a long wheelbase supporting one or more bowls, blades or baskets that are intended to carry soil from high points to low areas in a field. Some systems are controlled by a laser beam for precise levelling.
Levee-Plow-Disk (507)	A machine used to throw up levees or ridges between rice fields. Most machines have two sets of discs, each with one to three disc blades that throw the soil up into a levee. Most levee discs are toolbar mounted. The disc sets can be reversed to tear down the levees.
Rear Mounted (508)	A curved blade, 5 to 8 feet long and 15 to 24 inches deep, attached to the 3-point hitch of a tractor. Most can be angled sideways and up and down from ground level either manually or hydraulically. Used for ditching, back filling, scraping and rough levelling.

OTHER IMPLEMENTS

Chaff/Straw Saver (600)	An Attachment pulled behind a combine that bunches or stacks the chaff and/or straw as it comes from the combine. The small hay (straw) stocks are left in the field for later retrieval. The chaff or straw is used as feed or bedding.
Electric-Discharge Weed Killer (601)	A machine that has a PTO powered generator to produce an electric charge that uses the weed plant to complete an electrical circuit to the ground. The current causes the plant cells to rupture, killing the plant. Weeds must be taller than the plants in order for the method to be feasible. Utilizes a 50 KW generator powered by a 1000 RPM-PTO on a minimum 120 HP tractor.

SECTION X - FIELD OPERATIONS

Hay Wagon (602)	Flat bed wagon used to haul hay.
Off-field Thresher (603)	Stationary threshing machine.
Rock Picker (604)	A heavy duty machine with pick-up teeth or heavy duty rotating reels that deposits rocks and stones from "1" diameter to 500 pound boulders in a tank or bucket for removal from the field. Some rock pickers or harvesters are equipped with elevators that deposit the rocks directly into a truck or trailer.
Rock Windrower (605)	A heavy side-delivery or wheel type rake that moves the stones into windrows in order to speed up the process of rock picking.
Rodent (Gopher) Killer (606)	A machine with a sub-soil shank that allows poisoned bait to be injected into the soil at the same depth as the gopher burrows or runways. Fields are usually treated in a criss-cross pattern to get better coverage.
Rubber-Wheeled Weed Puller (607)	A series of paired rubber tired wheels set touching one another and rotating in opposite directions. As the machine moves forward at a level above the crop but below the weed tops, the weeds are caught by the spinning wheels and are pulled out.
Flail (608)	Same as flail mower. See 412.
Rotary (609)	Same as a rotary mower. See 408.

SECTION X - FIELD OPERATIONS

Silage Harvester (610)	Similar to forage harvester for chopping fodder.
Stalk Shredder (611)	A rotobeater with hard metal rods or cutting blades attached to a revolving horizontal shaft.
Tractor or Truck-no Attachments (612)	Self explanatory.

— 32 —

Y CUSTOM and TECHNICAL SERVICES — BARLEY Y

1. Was any agricultural **service or custom work** done on this operation for a fee or on a contract basis for the barley? *[To be considered custom work, both machinery and labor must be provided.]*

☑ YES ☐ NO - *[go to 3]*

2. I shall read several types of custom operations, please tell me if it was used or not and if so, what it cost.

(1)	(2) Total cost — $ — OR	(3) Cost per unit dol/cents and	(4) Total units
2a. land leveling? ☑ NO ☐ YES —►	519	_•__	____
2b. plowing? ☐ NO ☑ YES —►	520 3,000	_•__	____
2c. planting? ☑ NO ☐ YES —►	521	_•__	____
2d. cultivating? ☑ NO ☐ YES —►	522	_•__	____
2e. harvesting and hauling? ☐ NO ☑ YES —►	523 1,000	_•__	____
2f. harvesting only? ☑ NO ☐ YES —►	524	_•__	____
2g. hauling only? ☑ NO ☐ YES —►	525	_•__	____

3. Were any technical services, such as soil testing or scouting, performed on the barley for a fee?

☐ YES - 3a. What was the total cost?.....dollars 526

OR cost/unit dollars & cents _•__

and total units

☑ NO

SECTION Y - CUSTOM WORK

Purpose — To obtain data for certain custom operations performed on the operation's 1987 barley.

Definition — Custom work is the hiring of a machine service which provides both the machinery required and the labor necessary to complete the operation. Frequently, a respondent may rent a machine and operate it himself. This is not a custom service but rather normal machinery rental. Machinery rental operations should be reported in Section X, Field Operations.

Item 1 — Check the appropriate box indicating if the operator hired any custom work done on the 1987 barley. Exclude any custom fertilizer or chemical application charges recorded earlier in the questionnaire. Exclude "swap" labor.

Complete the item 2 if "Yes" is checked.

Item 2 — This item is the <u>total cost</u> of a custom operation that will be used in tabulations. This can be obtained by either of two ways. First, if the operator knows the total cost for a particular custom operation, enter this figure in column 2 and go to the next preprinted operation. <u>This is all of the information that is needed.</u>

If the operator does not know the total cost, then the second method is to obtain the cost per unit (acre, hour, ton, etc.) for the custom operation (enter in column 3) and then get the total number of units payment was made on and record in column 4. The total cost can then be computed in the clerical edit.

Column 1 — Custom operations are prelisted. If an operation is reported that is not prelisted, make notes explaining the operation. When recording any data associated with custom harvesting, determine if other operations were included. Check a NO or YES after asking about the pre-listed operation.

SECTION Y - CUSTOM WORK

Column 2 — Enter the total cost associated with each operation. **If this column is completed, skip columns 3 and 4.**

Column 3 — Record the cost per unit associated with each operation. Entries are to be in dollars and cents. **If there is an entry in column 3 there must also be an entry in column 4.**

Column 4 — Enter the corresponding total units for which there was payment. For computing the total cost, it is irrelevant what these units are.

AA IRRIGATION — BARLEY AA

1. *[If barley was not irrigated—see Q—go to BB.]*

I will now mention several sources of irrigation water. Please tell me the number of acres of barley irrigated from each source and the total number of other crop acres, if any.

	(1) Source	(2) [check] None	(3) barley - acres -	(4) [check] None	(5) Crops OTHER than barley - acres -
1a.	wells	☐	747 100	☐	748 50
1b.	purchased water	☑	749	☑	750
1c.	surface sources (rivers, lake, ponds) which were—				
	(1) free flowing	☑	751	☑	752
	(2) pumped by your own pumps	☑	753	☑	754
	(3) pumped by private association pumps (and no charge for water)	☑	755	☑	756
1d.	OTHER sources (such as return water or waste water)	☑	757	☑	758
	[Add 1a + 1b + 1c + 1d. Enter below.]				
1e.	TOTAL	☐	759 100	☐	760 50

SECTION AA - IRRIGATION

Purpose

The purpose of this section is to obtain a description of the irrigation equipment and irrigation practices used by this operation in the production of its barley. Information obtained will be used to estimate irrigation costs.

Irrigation

Information recorded here explains where and how water is obtained, what equipment is used in obtaining the water and conveying it to the fields, and what equipment is used to apply the water to barley.

Include all applications of water that were made to benefit the 1987 barley crop including those which may had been made in the fall of 1986.

Definitions

Surface Water

Water stored in impounded or dug pounds, lakes, or flowing in streams and rivers.

Ground Water

Water from wells.

Pumping Lift

The vertical distance from the water level during pumping to the outlet at the surface of the ground. It is the static water level plus draw-down.

Drilled Depth

The vertical distance from the surface of the ground to the bottom of the drilled hole.

Acre-Inch

A quantity of water sufficient to cover one acre of land one inch deep.

SECTION AA - IRRIGATION

Head Ditches

The main ditch at the top of each field or basin from which water is drawn for application to the field.

Item 1 Source of Water

Consider only water sources used to irrigate acreage on which barley was produced in 1987. Do not list sources if the barley was not irrigated by that source. For example, in 1987 a producer purchased water from an irrigation district and on an adjoining acreage pumps from his own wells. He produced 200 acres of oats on the land for which he purchased water. He produced 300 acres of barley and 200 acres of wheat on the land irrigated by his own pumps. Do not record "purchased water" as a source of water for any acreage since the source was used entirely for his oat crop. Do record 300 barley acres irrigated and 200 other acres irrigated by "wells".

Record the number of barley acres irrigated with water obtained from each source listed. Record the number of acres of barley irrigated by each source and the number of all other crops irrigated by each source from which barley was also irrigated.

If the respondent's only source of irrigation water is wells (groundwater), record the total number of barley acres and the total number of other irrigated acres in cells 747 and 748. If the respondent obtained all irrigation water from an irrigation company or district, record the acres of barley in cell 749. **In this situation, the operator or land owner must pay annual fees or charges for each irrigation and sometimes may pay both.** If the respondent obtained irrigation water from more than one source, record the acreage of barley irrigated from each source.

SECTION AA - IRRIGATION

Often, a producer near an area served by an irrigation district may be charged a fee by the irrigation district even though he does not receive any water from that district. This fee reflects the value of the ground-water recharge resulting from the use of irrigation district water in the area. In this situation, do not record any acres as irrigated with purchased water.

If the respondent obtained water to irrigate barley from surface sources (rivers, lakes, ponds, etc.), record the acres irrigated in cells, 751, 753, or 755. Record acres irrigated with free flowing water in cell 751. Record acres irrigated with water pumped by the operator's pump in cell 753. Include in cell 755 acres irrigated using water pumped by privately owned pumping companies or associations where there is no cost for the water itself. Such an arrangement is commonly found along the Snake River in Idaho.

In some areas, water may be obtained from more than one source and conveyed to the same fields. In this case obtain the respondent's best estimate of the proportion of water obtained from each source and divide by acres so that the total in cell 759 equals the total acres of the irrigated barley.

Water provided by an irrigation district should be considered "purchased water" regardless of the source to the irrigation district. The irrigation district may obtain all of its water by pumping from deep wells or via canal from a lake, reservoir, or stream. All acreages irrigated with water provided by the irrigation district or canal company should be listed in item 1b.

SECTION AA - IRRIGATION

In some cases, farmers may have formed an association to provide water. These associations may maintain pumps and ditches and charge the individual farmer for his share of these costs. If the association does not charge the producer for water, but only for the cost of delivery, then report acres irrigated in item 1c(3) "pumped by private association pumps".

Do not record any association (in item 1c3) receiving water from Bureau of Reclamation, Army Corps of Engineers, or State Water Projects, even though some associations (and irrigation districts) may have negotiated for free water from these sources.

Item 2 Well Water

Consider only the wells used to irrigate the 1987 barley. They need not be used exclusively for the barley but, must have been used at least partially to irrigate the acreage. For our example, the farmer has 5 wells. Two of these wells provided water exclusively for barley in 1987. One well was used for irrigating both corn and barley and two wells provided water exclusively for corn. Record "3" wells in cell 761.

For the wells used to irrigate barley, record the average depth, average pumping lift, and average well casing diameter. The average depth refers to the average drilled depth, as defined earlier. The average pumping lift was also defined earlier. The depth and lift will depend on the water table level and the amount of drawdown on that water table during pumping. The average well casing will probably range from 12 to 36 inches, with 20 inch casings being relatively standard throughout much of the West.

Question 2e attempts to survey the prevalence of ground water pumping restrictions. If these restrictions are in effect, check YES, and ask the respondent if he or she would have pumped more water if the restriction had not prevented it.

SECTION AA - IRRIGATION

Item 3 — Purchased Water

If the producer reported purchased water applied to the barley (cell 749), report the source and cost of that water here. Include the cost for water applied to all crop acres.

Circle the principal source of that purchased water. Some producers may belong to irrigation districts which receive water from Bureau of Reclamation projects, Corps of Engineer projects, state water projects, and the district's own wells. Obtain the producers estimate of the source that provided the largest quantity of water to his irrigation district in 1987. The price charged by such multi-source irrigation districts will be a weighted average of the costs of obtaining water from each source.

Item 3a — Report the cost of purchased water, either as a total cost, or the cost per acre, if the charge is assessed this way. Report the cost of water applied to the total irrigated acreage. If the irrigation district charges per acre-foot delivered, compute the total costs.

Item 4 — Surface Sources

Enter the average <u>vertical</u> lift from the water source to the barley fields. This is not the distance from the water source but rather the change in elevation between the water source and the fields.

AA irrigation — barley — continued AA

2. *[If no barley was irrigated from WELLS, IC 747 zero, go to 3]*

2a. How many wells were used to irrigate the barley? 761 3

2b. What was the (average) depth? 762 325

2c. the (average) pumping lift? 763 110

2d. the (average) well casing diameter? 764 20

2e. Do laws and regulations impose restrictions on the amount of ground water this operation is allowed to pump? 765

☐ YES ☐ NO - *[go to 3]*

(1) Would this operation have pumped more groundwater if legal restrictions had not prevented it? 766

☐ YES ☐ NO

3. *[If no barley was irrigated with PURCHASED WATER, IC 749 zero, go to 4.]*

Where did the purchased water come from? *[circle code]* 767

Bureau of Reclamation 1
Army Corps of Engineers 2
State Project 3
Private Project 4
Some other source 5
[Specify] _____

3a. What was its total cost? ..... dollars 768

OR

What was the cost per acre? ..... dollars 769

4. *[If no barley was irrigated from SURFACE SOURCES, IC 753 zero, go to 5.]*

4a. If the water had to be pumped, what was the average vertical lift to the barley irrigation area? ..... ft 772

SECTION AA - IRRIGATION

Item 5 Surface Sources with Private Association Pumping

Obtain data on the pumping costs of surface water provided by a private pumping association where there is no cost for the water itself. (If cell 755 is zero skip to item 6). The cost reported here will include primarily power costs but may also include costs for repair and maintenance of the pumps and pump ownership costs. Record either the total cost for this crop (cell 837) or cost per acre (cell 838).

Item 6 Irrigation Pump Power Units

Here we want to obtain descriptions of the power units used to perform all of the pumping of irrigation water for barley. If no pumps were used to deliver water to the fields or to apply it, skip to item 7.

Include in this section all power units used in 1987 for irrigation of the barley. Include power units used with tailwater or wastewater pits or pump-back systems.

In areas where water is applied with sprinklers, it is common to have two pumps in operation: one pump to pump water from the well, and a booster pump to pressurize the water through the sprinkler system. Record each of these separately.

<u>Do not include</u> information in this section about power units owned and operated by an irrigation company or district even if the respondent is part owner of the irrigation company.

AA irrigation — barley — continued AA

5. *[If no barley was irrigated from PRIVATE ASSOCIATION PUMPS, IC 755 zero, go to 6.]*

— $ —

What was the total pumping and overhead cost of private assocation water for this barley crop? 837

OR

What was the pumping and overhead cost per acre for the barley? .....dollars & cents 838 __•__

6. What pumps were used?
[Exclude all public and private project pumps.]
[If none, go to Item 7.]

(1) *[water source or pump utilization]*	(2) What was it powered by? *[enter code]*	(3) How many of these were used?	(4) WHAT WAS THEIR (AVERAGE)— Size?	(5) Pumping rate per unit in GPM?	(6) Hours of use per unit for ALL crops?
Booster Pump 1/	773 1	774 3	775 200	776 1400	777 3000
Wells	778 1	779 3	780 600	781 1500	782 3000
	783	784	785	786	787

1/ [Pumps that are used solely to provide pressure in the pipeline.]

Column (1)	Column (2)	Column (4)
Water Sources or Pump Utilization Types	Possible fuel/ power types	Size
Wells	Electric	Horsepower
Rivers, lakes, ponds	Gasoline	Cubic Inches
Tailwater, wastewater pits	Diesel.....	Cubic Inches
Holding ponds	LP Gas.....	Cubic Inches
Irrigation above ditch or canal	Natural Gas	Cubic Inches
	Tractor *[code = 9]*	Horsepower

SECTION AA - IRRIGATION

Column 1 — Enter a narrative description of the water source/pump utilization listed at the bottom of the table.

Column 2 — Enter the code of the fuel or power type that applies to the power unit(s) listed on each line. Codes to use are:

Electricity	= 1	LP Gas	= 5
Gasoline	= 2	Natural Gas	= 6
Diesel	= 3	Tractor	= 9

Column 3 — Enter the number of units of that particular size and power type. In our example, the producer has 3 wells that are pumped by 600 horsepower electric motors. Each well also uses a 200 horsepower electric motor to pressurize the water for sprinkler application.

The operation may also pressurize water from an irrigation company for application by sprinkler.

Column 4 — Record the average size of the unit.

Column 5 — Enter the average pumping rate in gallons per minute (GPM) for the pump(s) listed on each line. Pumping rates should be those found during normal operation.

The booster pump should pump at the same rate as the well pump. If the well water is pumped into a canal or other storage facility, and then applied with a pump, do not consider this a booster pump, but code the water source appropriately.

AA irrigation — barley — continued AA

7. What irrigation system(s) was used to apply the water to the barley? *[check system in col. (1) and fill in cols. (2)-(6)]*

(1) System	(2) How many acres of barley were irrigated?	(3) How many times was it irrigated?	(4) What were the average inches of water applied each time?	(5) How many acres of ALL crops were irrigated?	(6) How many systems were there?
☐ hand moved	788	789	790		
☐ solid set/season	791	792	793		
☐ side roll (wheel line)	794	795	796		
☐ center pivot ☐ low pressure . ☐ high pressure .	797	798	799	800	801
☐ big gun (cable tow)	802	803	804	805	806
☐ gated-pipe ..	807	808	809	810	811
☐ siphon tubes	812	813			
☐ flood	814 *	815			
☐ OTHER	816 *	817			
	818 *	819			

7a. Any other systems? *[enter above]*

7b. *[Add Column (2) and enter total below in 7c.]*

7c. **TOTAL...** 820

[Does acreage in 7c check with total irrigated acres of barley in Q? ☐ YES - go to 7e. ☐ NO - recheck totals. If discrepancy remains, ask.]

7d. Were any of these acres irrigated with two or more application systems?

☐ YES ☐ NO 821

SECTION AA - IRRIGATION

Column 6 — Report the average hours used by each power unit. In our example, the respondent estimates that his wells and booster each run 1000 hours per year. He informs us that the pumps pressurizing the irrigation company water run 24 hours for the 4 1/2 months that water is delivered. Irrigation pipe is moved so that the pumps irrigate a fairly large acreage. Of the 135 days that he irrigates (4 1/2 months X 30 days per month) he estimates that the pumps average being down 10 days each for repairs, and time lost when sections of pipe are moved. We estimate that the pumps average 3000 hours each (125 days X 24 hours per day).

Item 7 — For this final item, record information which describes the equipment and practices used to apply water to barley.

Descriptions — Sprinklers:

Hand-Move Sprinkler System: Portable aluminum pipe system which must be moved one or more times per day to meet crop irrigation requirement. May use a variety of different sprinkler sizes. Adapted to most soil types, topography, field size, and shape.

Solid-Set Sprinkler System: Portable aluminum pipe system which is placed in the field(s) at the start of the irrigation season and left in place throughout the season. May use a variety of sprinkler sizes, but normally designed for small sprinklers and low application rate. Adapted to most soil types, topography, field size and shape.

Permanent Sprinkler System: Buried pipe system with only the risers and sprinklers above ground. This system has the same characteristics as the solid-set sprinkler system, except that the labor requirements will be lower. Code as solid-set sprinkler.

SECTION AA - IRRIGATION

Self-Propelled Side-Roll Wheel Move: Self-propelled continuous move side-roll system on towers spaced 80 feet apart designed to be used on square field 1320 feet by 1320 feet and on crops up to 9 feet in height. Water is supplied to unit by flexible rubber hose. Restricted to reasonably flat terrain. Unit can be end-towed from one field to another. This system may also be referred to as a Linear Move System.

Side-Roll Wheel Move: Wheel-move lateral line, designed to be used on rectangular or square fields up to 2000 feet in length and on low growing crops 4 feet or less in height. Unit is moved by a small gasoline engine. Wheel are spaced 40 feet apart. Designed to irrigate a strip 60 feet wide at one setting. Restricted in use to reasonably flat terrain. Unit must be disassembled to move from one field to another. Best suited to fields of at least 20 acres in size and 1000 to 1500 feet long.

Side-Roll Wheel Move With Tow Lines: Wheel move lateral line with tow lines trailing behind the main lateral line, with one to three sprinkles per tow line. Unit is moved by small gasoline engine. Wheels are spaced 40 feet apart. Designed to be used on rectangular or square fields of 40 acres or more in size and up to 1320 feet in length and for crops up to 9 feet in height. A strip up to 180 feet wide can be irrigated at one field to another. Restricted to reasonably flat terrain.

End-Tow: Aluminum pipe sprinkler lateral mounted on dolly wheels or skids spaced 20 to 40 feet apart. Unit is end-towed through the field from one position to another by a tractor. Designed to be used on pasture and hay crops, but can be used on some row crops and tree fields. Designed to be used on rectangular or square fields up to 2000 feet in length with alley through the center of the field. Best suited to flat to slightly rolling topography. Strip up to 80 feet wide can be irrigated at one setting. Enter as a side-roll.

SECTION AA - IRRIGATION

Carousel Sprinkler-Traveler: A system with a rotating boom that sprinkles or sprays water as it propelled forward across a field. Water supply is either hose or supply ditch. Most systems are self-propelled with a mounted gas or diesel engine. Enter as a side-roll.

Center-Pivot System: Self-propelled, electronic or hydraulic continuous move sprinkler or spray nozzle system which travels around a center pivot point on towers spaced 80-100 feet apart. Pattern irrigated is essentially a circle; however, some system have features that provide for coverage of much of the four corners. Best suited to square fields of 40 acres or more in size, slope of less than 10% and high infiltration rate soils. Can be used on fields up to 240 acres in size. Unit can be end towed from one field to another, but normally limited to use on three adjacent fields. Low pressure is less than 45 PSI.

Self-Propelled Gun Traveler; Self-propelled by separate engine, or hydraulic continuous move, single large gun mounted on a four wheel trailer. Water is supplied through a flexible rubber hose. Best suited to rectangular or square fields 800 to 1500 feet in length, but can be used on odd-shaped fields. Designed for use on straight rows, flat to slightly rolling topography and medium to high infiltration rate soils. Enter as a big gun.

Reel Type-Hose Pull: Uses a non-collapsible (hard) hose on a reel. The gun type sprinkler attaches to the hose and is stationed at one end of the field and the hose reel at the other. As the water passes through the hose it activates a turbine drive system that rolls the hose onto the reel and pulls the sprinkler gun and carriage across the field - ready for the next move. Enter as a big gun.

SECTION AA - IRRIGATION

Reel Type-Cable Pull: Similar to hose pull systems except the sprinkler gun and carriage is pulled by a cable as the hose is dragged in a loop across the field. These systems often require a grassed strip to operate on. Enter as a big gun.

Gravity Irrigation System

Gated Pipe: A pipe, usually plastic (PVC) or aluminum, that is fitted with spaced closeable gates or holes that permit the water to flow into furrows or basins. For flood irrigation the regulating gates are usually controlled manually but can be automated. This system usually requires some powered pumping system but can flow with gravity from a reservoir or diversion dam.

Siphon Tubes: Short tube usually made of aluminum or plastic that are used to "siphon" water from a ditch into a furrow or field. Tubes are three to five feet in length, are curved and range in size from about one inch to three inches in diameter.

Graded-Furrow: Application of water in small channels having continuous slope in direction of water movement to irrigate row crops. Best suited to sites where furrow grade does not exceed 1%. Fields must be well graded and tail water facilities should be installed. Not designed to apply light application of irrigation. Water is applied to furrows by gated pipe or from ditches by siphon tubes. Enter according to how water is applied.

Contour-Furrow: Similar to graded furrow, but furrows are laid on the contour to reduce slope. Can be used on all soils except light sandy soils and soils that crack. Enter according to how water is applied.

SECTION AA - IRRIGATION

Contour-Ditch: Form of controlled surface flooding. Water is distributed from ditches that run along the contour. Water is discharged through openings in ditch bank, by siphon tubes or over uniformly graded lower lip of ditch. Water flows in unconfined sheet down slope from one contour ditch to the next and is collected in next ditch for reuse. Suited to noncultivated crops such as legumes, grasses, and small grains. Enter according to the application system used.

Contour-Levee: The areas bounded by small contour levees and cross levees are completely flooded. Application rate is considerably larger than intake rate. Water remains on soil until irrigation needs are met and excess is then drained away.

Adapted to crops that can tolerate flooding for up to 12 hours such as rice, cotton, corn, soybeans, small grains, and grasses. Land forming is required and adequate surface drainage is an essential part of the system. Irrigation water must be of good to excellent quality. Enter as flood application.

Corrugation: Partial surface flooding method. Water is applied in small channels or corrugations evenly spaced across the field. Initial streams are greater than intake rate of soil, but must be cut back when water reaches lower unit to prevent runoff or tail water recovery systems must be installed. Best suited to close growing, non-cultivated crops such as legumes, grasses, and small grains. Enter as flood application.

Graded-Border: Type of controlled surface flooding. Field is divided into strips by parallel dikes. Stripes should have little cross-slope. Best suited to soils with moderately low to moderately high intake rates. Used to irrigate legumes, grasses, small grains, orchards and vineyards. Enter as flood application.

SECTION AA - IRRIGATION

Level-Border (Basin): Rapid application of water to level or nearly level area enclosed by dikes to retain water at uniform depth until it infiltrates the soil. Best suited to soils with moderate to slow intake rate and a moderate to high available water holding capacity. Can be used to irrigate a number of crops without changing the basic layout or rate of application. Accurate land leveling is required. No irrigation water is lost by runoff. Enter as flood application.

Level-Furrow: This method of irrigation uses small channels without grade and is used to irrigate crops planted in or between the furrows. A large stream of water is required and water remains at a uniform depth throughout the furrow until it infiltrates the soil. Best suited to soils having moderate to slow infiltration rate and moderate to high available moisture holding capacity. Best suited to row crops, but can be used for grass crops. Enter as flood application.

Sub-Irrigated: Maintenance of a water table at some predetermined depth below the surface through the use of ditches, sub-surface drainage tubing or mole drains and water control structures. Conditions for use of this system are limited. These conditions include flat topography, an impermeable layer or permanent water table at a shallow depth of 4 to 8 feet and a permeable sand layer where the ditch or tile is installed and a fairly permeable soil profile not less than 24 inches deep. The sub-irrigation system also serves as a drainage system. A good water supply is needed to rapidly supply irrigation water needs. Enter as other.

AA irrigation — barley — continued AA

7e. *[If SIPHON TUBES or FLOOD was used (see previous page), ask]*

What percent of the ditching was—

(1) cement lined?	822 %
(2) dirt lined?	823 %
(3) *[If dirt lined]* How many times were head ditches put in during 1987?	824
(4) How many fields of barley were irrigated using siphon tubes or flood irrigation?	825

8. What was the most common method used to schedule the time and amount of water applied? *[circle code]*

visual observation of the crop and/or soil	(1)
use of a calendar schedule	2
media information on crop water needs	3
water delivered by irrigation organization with no scheduling choice	4
use of soil moisture sensing instruments such as tensiometers or blocks	5
commercial scheduling service	6

826

9. I will read several water-saving management techniques, please tell me if this operation practiced any of them. *[circle code]*

	YES	NO	
9a. tailwater pits and reuse systems	(1)	2	827
9b. wide-spaced bed furrow systems (widths greater than 45 inches)	1	(2)	828
9c. compacted furrow beds	(1)	2	829
9d. furrow diking	(1)	2	830
9e. short-set irrigation [stopping irrigation prior to water reaching the end of the field]	1	(2)	831
9f. limited irrigation [applying water at a rate less than that which would maximize yield]	1	(2)	832
9g. elimination of pre-plant irrigation applications	1	(2)	833
9h. laser-leveling techniques to adapt field slope	1	(2)	834
9i. surge-flow application	1	(2)	835
9j. cablegation water application management system	1	(2)	836

SECTION AA - IRRIGATION

Drip or Trickle: Maintenance of an adequate portion of the root zone of the plant at, or close to, full soil moisture capacity during the growing or productive cycle of the plant's life. Water is supplied through emitters attached to a supply pipe or porous tubing at a rate of 3 to 15 gallons per minute (gpm) per acre depending upon the crop and the application method. System is designed to be operated daily or at rather frequent intervals. Designed to be used on all soil types, except extremely high infiltration rate soils, on rolling to flat topography, primarily on tree, vine, nursery and greenhouse crops and high cash value row crops. Enter as other.

Column 2 — Enter the barley acreage that is irrigated by each type of application system. If more than one application system is used on the same acres of the barley, enter the total acres under each system.

Column 3 — Record the number of times water was applied to barley with each application system.

Column 4 — Enter the average quantity of water applied per application by each application system. Water quantities must be recorded in acre inches.

Columns 5 and 6 — For the center pivot and big gun applications systems, record the total acreage of all crops irrigated during one season in column 5 and record the number of center pivot or big gun systems used to irrigate these acres in column 6.

If any of the acres of barley were irrigated with two systems (on same acres) the total acres recorded in cell 820 will exceed 759. If this is the case, complete item 7d indicating that the same acres were irrigated with two systems.

Item 7d — In item 7C check enter YES if the total acres irrigated of the barley exceeds the planted acreage of the barley. This should only occur when some of barley acres were irrigated with more than one application system.

SECTION AA - IRRIGATION

Item 7e

If siphon tubes or flood systems were indicated, enter the percent of each type of ditch used in item 7e (cells 822 and 823). Record in cell 824 the number of times head ditches were plowed in if dirt lined ditches were used. In cell 825, record the number of fields of barley irrigated by siphon tubes or flood application methods.

Item 8

Scheduling Irrigation

Irrigation technology has changed drastically in recent years as costs have risen and water availability has declined. To better understand the respondent's decision making factors, item 8 has been added. Most farmers still use sight and touch to determine the fields' water needs, but others have turned to professional scheduling or to sensing instruments. Circle the most common method from those listed.

Item 9

Water saving techniques

Along with more precise scheduling, many farmers have adopted one or more water saving techniques to more efficiently use their irrigation water. These can range from eliminating certain applications or changing field layout to reuse systems. Circle <u>each</u> listed method that the respondent practices.

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CHAPTER 11
COTTON
1987 FARM COSTS AND RETURNS SURVEY

Q ACREAGE and SEEDING — COTTON Q

1. *[If no cotton planted—see B—go to BB]*
Now I need more information about the cotton planted on this operation in 1987.

2. How many acres of all solid and skip row cotton were planted on (irrigated, non-irrigated) land that this operation—

	— acres planted —		
	Irrigated	Non-Irr.	Total
2a. owned?	384	385	386
2b. rented on a cash basis?	387	388	389
2c. rented on a share basis?	390	391	392
2d. used rent free?	393	394	395
[Enter totals below and in right-hand column]			
2e. TOTALS	396	397	398

3. How many acres of (irrigated, non-irrigated) cotton *[in 2e]* were planted in a—*[Include acreage double cropped. Exclude cover crops on any land in a Reduced Acreage Program and any crop that was destroyed to qualify for the program.]*

	— acres planted —		
	Irrigated	Non-Irr.	Total
3a. SOLID row?	946	945	944
3b. SKIP row?	943	942	941

4. What was the (average) seeding rate for all cotton per acre (one time over)? .....pounds/acre [399]

5. How many tons of cottonseed from the 1987 crop did this operation sell? *[in any year]* .....tons [925]

5a. How much was received?.....dollars [926]

SECTION Q - ACREAGE AND SEEDING - COTTON

[Arizona enumerators should to Section BB, page 40 if the code box 002 at the top of the page has a "2" entered.]

Purpose — To determine the tenure of the operator's 1987 cotton acreage, the seeding rate and if any cottonseed was sold.

General — The total acres includes all owned, rented, and rent free land for which the operator makes the day-to-day management decisions. The total acres may be contiguous or non-contiguous. If the operation is non-contiguous, the operator must make the day-to-day decisions for each parcel of land in the non-contiguous operation.

Definitions for items 2a through 2e are the same for all cotton.

Item 1 — The enumerator note instructs you to go to Section BB, page 40, if no cotton was planted. You may need to refer to Section B, page 5, to see if any cotton was reported.

Item 2a — Include land held by the operator or spouse and dependent children under title, purchase contract, homestead law, or as one of the heirs or trustees of a divided estate.

Item 2b - 2d — Include all land rented from others (private individuals, Federal, State, railroad, etc.) for which the operator used the land rent free, paid cash rent on a per acre basis, or paid for the land with a share of the cotton (either standing or harvested). Record the acres of cotton that were irrigated or non-irrigated by land tenure. The sum of the reported irrigated and non-irrigated acres should equal the total acres of cotton planted on this operation in 1987. Data from item 2 will be used primarily to determine a land charge for the cotton.

SECTION Q - ACREAGE AND SEEDING - COTTON

Item 3	There are 2 methods for planting cotton. Solid row is evenly spaced rows as found with most field crops like corn. Skip row in a method of incorporating set aside acreage into the planted field. A common pattern of skip row planting is termed 2 by 2 and has 2 rows of cotton followed by 2 rows idle, then 2 rows of cotton and 2 more rows idled, and so forth.
Items 3a and 3b	Record the planted acreage by solid row and skip row, irrigated and non-irrigated.
Item 4	Record the average seeding rate per acre in either pounds per acre or seeds per acre.
Item 5	Cottonseed for oil and for livestock feed is a major by product of the cotton ginning process. Record the tons of cottonseed sold from the 1987 cotton crop, even if the sale was in 1988 (since the ginning could have been done much later than harvest).
Item 5a	Record the total dollars received for the cottonseed reported in item 5.

R CASH RENT — COTTON R

1. *[If cotton was not planted on **cash rented land**—see Q, go to S.]*

2. What was the (average) cash rent per acre for—

	— dollars per acre —	
	Irrigated	Non-Irr. .
Irrigated (non-irrigated) land cotton was grown on?	403	404

3. *[If cotton was not planted on cash rented irrigated land—go to S.]*

4. I shall read some costs of irrigation; please tell me what percent the landlord **was or would have been** required to pay according to the agreement.

	— % —
4a. **purchased** irrigation water?	406
4b. **purchased** pumps and motors?	407
4c. **purchased** sprinkler systems?	408
4d. pumps, motor and sprinkler system **repairs**?	409
4e. power or fuel costs?	410

SECTION R - CASH RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any cash rental arrangements that this operation was involved in for the production of cotton.

Cash Rent

This section should be completed of cash rented acres were reported in Section Q, cells 387 through 389. If there is more than 1 cash rent of agreement, choose the agreement involving the largest cotton acreage. In cases where 2 leases way qualify as largest in terms of the same number of acres, select the one that had the largest total production.

Item 1

Item 1 determines if any cotton was planted on cash rented land.

Item 2

Record the (average) cash rent paid per acre of irrigated and non-irrigated land for cotton. The entries should be to the nearest whole dollar.

If two or more tracts of irrigated (non-irrigated) cotton were cash rented, under the same agreement, with differing per acre rent rates, compute a weighted average rent. For example, if 100 acres are rented for $60 per acre and 50 acres are rented for $40 per acre, the weighted average would be determined as follows:

100 X $60 =	$6,000
50 X $40 =	$2,000
150	$8,000

$8,000 divided by 150 acres equals $53.00 cash rent per acre.

Item 3

The enumerator note between questions 2 and 4 determines if any cotton was planted on cash rented irrigated land.

SECTION R - CASH RENTAL ARRANGEMENTS

Item 4

If the operation had more than one cash rented irrigated cotton arrangement, select the agreement with the largest harvested acreage. In cases where 2 leases may qualify in terms of acreage select the one with the largest total production.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

— 26 —

S SHARE RENT — COTTON S

1. *[If no cotton planted on **share rented land**—see Q, go to T.]*

   Now I would like some information about cotton production on the **share** rented acres.

   [if more than one share rent agreement] Let's take the rental agreement with the largest cotton acreage.

How many acres under this agreement were planted to cotton in 1987?	411

2. What was the LANDLORD'S percentage share of the—

2a. lint? .....percent	940
2b. harvested seed? .....percent	939

3. *[In question 3 record what percent the landlord **was or would have been** required to pay according to the agreement in 1.]*

   Now I would like to record the landlord's percentage share of any chemical, harvesting, and irrigation expenses.

   What was the landlord's share for any—

	— % —
3a. fertilizer, lime and soil conditioners?	413
3b. pesticides?	414
3c. seed?	415
3d. all **harvesting** expenses?	416
3e. all **hauling** expenses?	417
3f. **purchased** irrigation water?	418
3g. **purchased** pumps and motors?	419
3h. **purchased** sprinkler systems?	420
3i. pumps, motor and sprinkler system **repairs**?	421
3j. power or fuel costs?	422

SECTION S - SHARE RENTAL ARRANGEMENTS

Purpose

The purpose of this section is to determine the costs and characteristics of any share rental arrangements that this operation was involved in for the production of cotton. With share rent, the farmer gives the landlord a percent of the harvested crop rather than cash.

Share Rental

The questions on this page refer to the rental agreement with the largest total cotton acreage if the operation had more than one share rental agreement. In cases where two or more agreements may qualify as largest in number of acres, select the one that had the largest total production.

Item 1

This directs you to complete this page if any cotton was planted on share rented land in Section Q, page 24.

Record the acres of cotton included in this agreement.

Items 2a and 2b

Record the landlord's share, in percent, of the cotton lint and the cottonseed.

Items 3a through 3e

Record the landlord's share, in percent, of the various input items used on the acres reported in item. Ask each item separately as the landlord's share may be a different percent for each item.

Items 3f through 3j

These questions ask irrigation costs. Leave it blank if the leased land under this arrangement was not irrigated. If the land was irrigated, the percentage paid by the landlord is to be recorded.

Determine if the specific irrigation cost item is relevant to the verbal or written agreement. If not, ask the next cost item, leaving the cell blank.

If the item is relevant to the agreement, determine the percentage of the cost the landowner was responsible for. It does not matter whether an actual cost was incurred or not, but rather the percentage the landlord would be responsible for had the expense occurred.

SECTION S - SHARE RENTAL ARRANGEMENTS

If for a given item, the cost of incurred expenses is to be split 60% landowner and 40% renter, then enter 60. The determination of whether there were actually expenses or not is irrelevant and need not be asked.

If, per the agreement, the renter is to pay 100% of the cost of a given item, and the landlord none, then a dash should be entered for that item.

T FERTILIZER — COTTON T

1. What fertilizer was used on the entire cotton crop?
(Include all materials applied in the fall of 1986 for the 1987 crop, all primary nutrient materials and all materials paid for by the landlord.) *[Enter analysis or actual pounds in column 1.]*

	(1) MATERIALS USED			(2) How much was used per acre per application? 1/	(3) What was the unit *[enter code Lbs = 4 Actual Ing. = 2 Gal. = 1]*	(4) How many acres was this applied to? 2/	(5) Was it CUSTOM APPLIED? *[If YES, enter cost of application only 3/]* dollars & cents per acre
	N	P_2O_5	K_2O				
527	16	528 20	529 6	530 75	531 4	532 250	533 _._ _
534	50	535 —	536 —	537 —	538 2	539 100	540 _._ _
541	82	542 —	543 —	544 100	545 4	546 70	547 _._ _
548		549	550	551	552	553	554 _._ _
TONS OF LIME				555 5		556 200	557 _._ _
TONS OF GYPSUM (LANDPLASTER)				558		559	560 _._ _
MICRO NUTRIENTS´			Code	562	563	564	
[Specify]	Iron		561 4	1	4	200	
[Specify]			565	566	567	568	

1/ *[If actual pounds of nutrients are reported in column 1, leave column 2 blank and enter code 2 in column 3 for actual ingredients.]*

2/ *[Total acres times the number of applications.]*

3/ *[Enter application costs only in column 5. If the application costs and material costs cannot be separated, leave blank.]*

Codes for Micro-Nutr.	
Boron	*= 1*
Calcium	*= 2*
Copper	*= 3*
Iron	*= 4*
Magnesium	*= 5*
Manganese	*= 6*
Molybdenum	*= 7*
Zinc	*= 8*
Sulphur	*= 9*

SECTION T - FERTILIZER

Purpose

To obtain data on the quantities of fertilizer elements used on this operation's cotton and data on custom application rates.

Include any costs for fertilizer paid for, in part, or in full by the landlord.

Columns 1, 2 and 3

The first four lines are to record the use of major fertilizer nutrients which are:

Nitrogen N

Available Phosphorus (P205)

Water soluble potash (K20)

These nutrients can be applied to a crop by several different methods, including:

(1) broadcast spreading of dry material;

(2) through an attachment to a drill or planter (this is usually dry material but liquid fertilizer can also be applied this way);

(3) through dripping liquid fertilizer material into the irrigation system;

(4) aerial application (found mainly on rice, but possible on other crops);

(5) and through chemical sprayer systems where small amounts of fertilizer are sprayed on to the foliage of a plant and absorbed through the leaves. For example, this is frequently done in cotton production and is called "foliar application."

SECTION T - FERTILIZER

Fertilizer can also be applied as plow-down prior to planting, at planting time, or as "side dressing" or foliar application throughout the growing season.

All of the fertilizer applied by these methods is to be included in this section.

Record in this section the quantities of nutrients applied per acre to cotton. Use of these three nutrients can be reported in two ways: either (1) by analysis in percent of the material applied, or (2) in pounds of actual ingredients.

The common method of reporting this type of fertilizer will be by analysis, i.e. 16-20-6. When fertilizer is bought by the bag, the analysis will be printed on the front. In the first line of the example, in this section, is an illustration of this method. When the analysis is given, the first number is the percent of nitrogen, the second is the percent of phosphorous and the third is the percent of potash.

There are hundreds of different analyses of fertilizer. With mixing equipment now available, a producer can get almost any mix of fertilizer ingredients desired.

Some fertilizers contain only one nutrient, such as 0-45-0, which is 45 percent phosphorus with no nitrogen or potash. Another common fertilizer is 33-0-0, which is 33 percent nitrogen only.

SECTION T - FERTILIZER

The sum of the three analyses cannot exceed 85. Chemists cannot make fertilizer without at least 15 percent other ingredients as carriers. If a producer reports something like 35-45-20, he must be reporting pounds actual ingredients instead of analysis since the three percentages add up to 100 percent. **Just remember, the sum of the three percentages cannot exceed 85.**

A producer may say he applied 10-10-16-2. The fourth item is the percentage or pounds of a trace element which should be listed below under "other material."

The other common method of reporting fertilizer is in pounds of actual or active ingredients. In line 2 of the example, the producer reported 50 pounds of actual nitrogen, no phosphorous and no potash. In this case, he applied it to only 100 acres of cotton. When a farmer reports application in pounds of actual ingredients, probe as to what type of fertilizer he applied. Some farmers are also confused on this item. He may have applied 50 pounds per acre of 0-0-33 which is only potash and would be only 16.5 pounds of actual potash. However, if he confirms that it was 50 pounds of actual potash, then you would record it as in line 2 of our example. In this case, leave column 2 blank and record a "2" in column 3.

Farmers may also report fertilizer by name. The following are some more common fertilizers with the usual analysis.

SECTION T - FERTILIZER

NAME	PERCENTAGE ACTIVE INGREDIENTS		
	N	P	K
Anhydrous ammonia	82	--	--
Aqua ammonia	20	--	--
Ammonium nitrate	33	--	--
Ammonium sulfate	20	--	--
Sodium nitrate	16	--	--
Urea	45	--	--
Super phosphate (22% & under)	--	19	--
Super phosphate (over 22%)	--	45	--
Ammonium phosphate	16	27	--
Diammonium phosphate	18	46	--
Monammonium phosphate	11	48	--
Potassium chloride	--	--	60
Potassium nitrate	13	--	44
Potassium sodium nitrate	15	--	14
Potassium sulfate	--	--	49

Anhydrous ammonia is the strongest nitrogen fertilizer available. It is a gas that must be kept under pressure (in a tank) and is injected into the ground. (It is a liquid when under pressure, but turns into a gas when released and will be lost if not injected into the soil). It is a very popular form of fertilizer because it is often cheaper than other forms. It can be reported to you as "anhydrous", as "82-0-0", or in "units of nitrogen" or as "pounds of active ingredients". Line 3, shows the use of 100 pounds per acre of anhydrous ammonia.

Aqua ammonia is one of the more common types of liquid nitrogen fertilizers. It is made up of anhydrous ammonia and water and is often found in western states. It may be reported in pounds or gallons. Although it is a liquid, it is usually reported in pounds of active ingredients.

Fertilizers applied through an irrigation system will often be reported in pounds or "units" of actual ingredients which can be recorded as on line 2.

SECTION T - FERTILIZER

Urea is also a commonly used nitrogen fertilizer because of its high analysis. It may be added through an irrigation system, usually as a nitrogen solution.

With many of the other named fertilizers the analysis may vary. Probe to determine if the farmer knows the analysis or pounds of actual ingredients applied. If he does not know the analysis, only the name, use the analysis given here, rounded to the nearest pound.

Report the amounts applied per application in columns 1 and 2. When column 1 reports active ingredients, leave column 2 blank. Multiple applications will be reflected in column 4, where total acres equals the number of acres times the number of applications.

Lime

Lime is usually applied broadcast as a dry material but wet limes are also available. The rates of application will be in tons per acre. It is used to reduce soil acidity. Use of lime will be concentrated in areas east of the Plains States. Very little is used in the West.

Gypsum (Landplaster)

Gypsum, or calcium sulfate, is used mainly by peanut growers. It's used to loosen heavy day soil, and more importantly to supply calcium. It is usually applied in tons.

Micro-Nutrients

A producer may say he applied 10-16-16-2. The fourth item is a trace element or micro-nutrient. Materials which may be listed in this section include trace fertilizer elements such as iron, boron, magnesium, etc. Record the name of the material, code column 1 according to the codes shown and record the quantity used per acre.

Many different trace elements may be used. These can be used on any crop and more likely on irrigated fields. The quantities applied are usually small, sometimes only one pound or less per acre.

SECTION T - FERTILIZER

Column 4

For all materials reported, we need to record the acres to which this material was applied. It may have been applied to all the acres or only a portion of the acres. If a fertilizer was applied to the same acreage more than once, add the acreage for each application. However, remember that the type of fertilizer and the application rate must be the same to allow acres to be added together.

Many fertilizer companies (and private consultants) conduct field soil tests and may recommend slightly different fertilizer applications for each field, based on the soil analysis. The farmer may have a set of receipts showing quantities and timing of fertilizer applications separately but obtain the farmer's best estimate of the average composition of fertilizer, and adjust the acreage to reflect the number of applications.

In line 1 of the example, the operator reported using 75 pounds per acre of 16-20-6 on 200 acres, but he applied it twice to 50 acres at the same rate, hence we recorded a "250" in column 4.

Column 5

For materials containing N, P, and K and lime and gypsum, record the cost of custom application only in column 5. Data on the cost of these materials is not needed. These prices will be obtained from NASS' "Agricultural Prices" release. If the material is applied by the operator, column 5 should be left blank.

****

Note: When a material is custom applied, this operation should be excluded from Section X (Field Operation), page 32. When a material is applied by the operator, this operation should be included in Section X.

****

SECTION T - FERTILIZER

Also leave column 5 blank if the material was custom applied but the operator cannot divide the cost between materials and application costs.

If trace minerals are applied, they are generally mixed with the N, P and K fertilizer and are not applied separately. Do not double count any application costs already reported for N, P or K.

— 28 —

U PESTICIDES — COTTON U

1. How many acres were treated with—*[exclude seed treatments]*

— acres —

1a. herbicides? *[include skips]* 423

2. *[if 1a none, go to 4, else, ask for products used in chronological order. If 2 or more individual products were put in the spray tank and applied in a single trip, record on the SAME line. If a product was used more than once, record each on a SEPARATE line.]*

3a. Was it applied before (code = 1), during (= 2) or after (= 3) planting? *[enter code]*	3b. What was applied? *[use codes on next page]*	3c. Was it custom applied? *[enter code]*	3d. How many TOTAL acres were treated? 1/	3e. How was it applied? *[broadcast-ground = 1, broadcast-air = 2, in-furrow = 3, band in/over row = 4, directed spray = 5, irrigation water = 6, spot treatment = 7]*
428	429	430	431	432	433	434
435	436	437	438	439	440	441
442	443	444	445	446	447	448
449	450	451	452	453	454	455
456	457	458	459	460	461	462
463	464	465	466	467	468	469
470	471	472	473	474	475	476
477	478	479	480	481	482	483
484	485	486	487	488	489	490
491	492	493	494	495	496	497

1/ Total acres times the number of applications.

— acres —

4. How many acres of cotton received no pesticide treatment in 1987? 518

SECTION U - PESTICIDES

DEFINITIONS — Herbicide - a chemical agent used to destroy or inhibit weed growth.

Items 1a and 1b — Record the number of acres to which herbicides were applied.

Item 2 — This screens to determine if no herbicides and were applied. If so, go to item 4.

Item 3a — Herbicide products can be applied before, during or after planting. ASK the respondent to start with before-planting treatments then go through the sequence ending with after-planting treatments.

Before Planting

The herbicide product is applied to the field before the cotton is planted. This may occur the same day, a week or several months before planting. If a tillage implement is used to incorporate the herbicide into the soil, be sure to record it in the field operations section (Section X).

During Planting

The KEY is that the herbicide is applied to the field during the planting operation. This may be accomplished with spray tanks mounted on the side or rear of the tractor.

DO NOT RECORD SEED TREATMENTS. Most cotton seed is treated with insecticides and fungicides by the seed company prior to packaging and sale to farmers.

After Planting

The herbicide material is applied after the planting operation is completed. They could be applied a few days or several weeks later. Herbicide materials applied after planting but before weeds emerge kill the seedling as it germinates. Herbicides applied after the weeds have emerged are applied to the foliage and the plant is killed by translocation.

SECTION U - PESTICIDES

Item 3b

Most of the herbicide products used in cotton production are listed in Section U, page 29. If the respondent indicates a product not listed, record under OTHER and specify the products trade name. This will enable later identification of the product. The product code or codes are to be recorded in columns 2, 3, and 4.

Most herbicide applications used in cotton production are applied to the field as single products, HOWEVER, 2 or more individual products may be mixed in the spray tank and applied to the field.

TANK-MIXES -- on the same line record the product code for each separate material mixed in the spray tank. If the tank-mix of Treflan + Zorial was the first application made to this field you would record on line 1 -- code 121 in column 2 and code 122 in column 3.

Item 3c

Code a YES= 1 or a NO = 2 if the product was custom applied.

Item 3d

Record the TOTAL acres treated with the product or tank-mix. If the same herbicide product is applied to a field more than once, multiply the acres treated by the times applied and record the TOTAL acres in 3d (col. 6). For example, if MSMA was applied 2 times to 100 acres, record 200 acres in 3d (col 6.).

Item 3e

Herbicide materials can be applied as broadcast treatments using either ground equipment or an aircraft, banded in/over the cotton row, or as directed sprays at the base of the cotton plant. Some farmers may apply material through the irrigation system.

BROADCAST treatments are when the entire surface area of the field is sprayed with a herbicide product. Broadcast application is the most widely used method for applying herbicide products used in cotton production.

SECTION U - PESTICIDES

BANDED treatments are when only the area over the crop row is sprayed with the herbicide material. The area between the cotton rows is not treated. At planting or before emergence of weeds or cotton, herbicide applications are made by spraying the product in a 10 - 13 inch band over the row. After emergence of the weeds or cotton banded applications are made with the use of drop nozzles that direct the herbicide spray at the base of the cotton plant under the leaf canopy. When banded herbicide treatments are used, weed control in the row middles in accomplished with mechanical cultivation.

U pesticides — cotton — continued U

HERBICIDES

Basalin 101	Paraquat +, Gramoxone 113
Bladex 102	Poast 114
Caparol 103	Prefar 115
Cotoran 104	Probe 116
Direx, Drexel diuron, Karmex 105	Prowl 117
DSMA 106	Roundup 118
Dual 107	Sancap 119
Fusilade 108	Surflan 120
Goal 109	Treflan 121
Lasso 110	Zorial 122
Lorox 111	Other 199
MSMA 112	*[specify]* _____

SECTION U - PESTICIDES

SEED TREATMENTS are not to be recorded.

SPOT treatments are when the herbicide material is only applied to a portion of the field. Spot herbicide applications are generally made to control problem weeds.

Item 4 — Record the total acres of cotton which received no pesticide treatments in 1987.

V TRACTORS — COTTON V

1. Now I would like to list the make and model of all the tractors used on the cotton crop.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors provided by custom operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					— *[if OWNED]* —		
LINE NO.	*[enter make and model]*	WHAT WAS IT'S— Drive? *[enter code 2WD =2 4WD =4 Craw =5 4W ASST =6]*	PTO HP?	Fuel type? *[enter code]*	How many total hours was it used for all uses?	Was it bought since JAN. 1, 1981? *[if YES ————————]* When was it bought?	What did it cost?
1	Int. 4366	569 4	570 195	571 3	572 1000	573 83	574 50000
2	JD 4050	575 2	576 100	577 3	578 600	579 84	580 41500
3	JD 4020	581 2	582 95	583 3	584 1000	585 —	586 —
4		587	588	589	590	591	592
5		593	594	595	596	597	598
6		599	600	601	602	603	604

SECTION V - TRACTORS

Purpose — The purpose of this section is to inventory all tractors used for the production of cotton on this operation in 1987.

Item 1 — Include tractors that were owned, rented, leased, or borrowed. Tractors owned in partnership should also be included. Exclude tractors used exclusively for custom work.

Column 1 — The pre-printed line number will be used to identify tractors used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 — List the make and model for each tractor, such as John Deere 4050. It is important that you get both accurately as the horsepower may need to be verified in the State office based on the make and model. If more than 6 tractors were used, record these tractors at the bottom of the page.

Column 3 — Enter the code for the type of drive for the tractor lists in column 2.

Type of drive:

2=2WD - Two wheel drive - conventional rear wheel drive.
4=4WD - Four wheel drive - power is transmitted to all four wheels, full-time.
5=CRAW-Crawler - track-type tractor.
6=4W ASST - Front wheel drive option or front wheel assisted. Power can be shifted to the front wheels for four wheel drive as needed.

Column 4 — Record the horsepower (PTO) rating. If the operator does not know the rating, obtain his best estimate and write note in margin.

Column 5 — Enter the code for the type of fuel used.

Gasoline = 2
Diesel = 3
LP gas = 5

SECTION V - TRACTORS

Column 6	Record the operator's best estimate of the total hours the tractor was used in 1987 for all purposes. Leave blank if the tractor was leased, rented or borrowed.
Columns 7 and 8	If any of the tractors listed in column 8 were purchased, new or used, by the operator since January 1, 1981 record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

W TRUCKS — COTTON W

1. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for cotton.]* 503 2

1a. What was the average number of miles driven per pick-up for **farm use only**?.....miles 504 6500

2. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for the production of cotton.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom operators.)

TRUCKS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[if OWNED]*		— *[if OWNED]* —	
LINE NO.	*[enter make]*	Fuel type? *[enter code]*	Size? *[enter code single axle =1 tandem axle =2 semi =3]*	What were the total miles driven for FARM USE?	What percent was for cotton?	Was it bought since JAN. 1, 1981? *[if YES ——————]* When was it bought?	What did it cost?
7	GMC	605 2	606 1	607 4000	608 50 %	609 82	610 5000
8	White	611 3	612 3	613 7500	614 100 %	615 — —	616 —
9		617	618	619	620 %	621 — —	622
10		623	624	625	626 %	627 — —	628
11		629	630	631	632 %	633 — —	634
12		635	636	637	638 %	639 — —	640

SECTION W - TRUCKS

Purpose — The purpose of this section is to inventory all trucks used for the production of the cotton on this operation in 1987.

Item 1 — Record the number of pick-up trucks that were owned, leased, rented or borrowed.

Exclude pick-up used by custom operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

Item 1a — Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 2 — Include trucks that were owned, rented or borrowed. Trucks owned in partnership should also be included. Exclude trucks used by custom operators who supplied their own trucks or trucks owned by the operator and used exclusively for custom work. Exclude pick-ups.

Column 1 — The pre-printed line number will be used to identify trucks used for various machine operations recorded later in Field Operations, Section X, page 32.

Column 2 — Enter the make of each truck to ensure that all trucks used during 1987 for the production of cotton. For ease of enumeration, you may wish to progress from smallest to largest.

Column 3 — Enter the code for the type of fuel used.

Gasoline = 2 Diesel = 3 LP Gas = 5

Column 4 — Enter the size code for each truck.

Single axle = 1
Tandem axle = 2
Semi = 3

SECTION W - TRUCKS

Column 5 — Record the operator's best estimate of the total number of miles driven in 1987 for farm related purposes for each truck listed. If the truck was rented or borrowed, then leave this column blank.

Column 6 — Record the operator's best estimate of the percentage of miles driven in column 4 used for the production of cotton.

Column 7 and 8 — If any of the trucks listed in the column 2 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

SECTION X - FIELD OPERATIONS

X FIELD OPERATIONS — COTTON X

1. Please describe field work performed, by machine only, on the cotton, beginning with the first activity after harvest of the preceding crop. (Include all field operations. Include chemical and fertilizer applications self-applied. Exclude all custom operations.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[enter field operation or equipment used]	*[enter machine code if used]*	What size was it?	*[enter unit] 1/*	*[enter line no. of tractor or truck used] 2/*	How many acres were covered? 3/	*[if OWNED ———]* Was it bought since JAN. 1, 1981? NO-*[list next operation.]* YES-*[continue.]* When was it bought?	What did it cost?
Plow	641 6	642 4	643 3	644 1	645 300 ~~200~~	646 —	647 —
Disk	648 11	649 18	650 1	651 1	652 400	653 —	654 —
Plant	655 105	656 18	657 1	658 3	659 ~~318~~	660 81	661 750
Fert.	662 77	663 —	664 —	665 658	666 —	667 82	668 250
Herb.	669 91	670 —	671 —	672 658	673 —	674 84	675 200
Fert.	676 70	677 35	678 1	679 2	680 200	681 —	682 —
Combine	683 122	684 20	685 1	686 99	687 200	688 —	689 —
~~Plow~~	690 6	691 4	692 3	693 1	694 100	695	696
Disk	697 16	698 18	699 1	700 2	701 200	702 —	703 —
Plant	704 100	705 18	706 1	707 3	708 100	709	710
Fert.	711	712	713	714	715	716	717
Combine	718 120	719 20	720 1	721 99	722 —	723 —	724 —
	725	726	727	728	729	730	731
	732	733	734	735	736	737	738
	739	740	741	742	743	744	745

1/ [Feet = 1, Row = 2, Moldboard = 3.]
2/ [For horse or mule drawn, enter 77; for self-propelled enter 99.]
3/ [Record total acres for all times covered, i.e., disked 100 acres 3 times = 300 acres covered.]

Supplements	
009	—

SECTION X - FIELD OPERATIONS

Purpose

The purpose of this section is to establish what machinery and equipment was used by this operation for the production of cotton.

Field Operations or Equipment

Crop Abandonment and Acreage Reduction Programs

If any of the cotton was abandoned due to natural causes, all operations performed on the cotton until (and except) plowing under should be included but not the operations of preparing the seedbed or planting of a replacement crop not enumerated. For instance, if a producer planted 125 acres of cotton, and later replanted 60 acres to soybeans, you should show field operations for planting 125 acres plus all the associated tillage but exclude the seedbed preparation of planting of the 60 acres of soybeans. You should follow through to harvest on the remaining 65 acres of cotton, but drop the 60 acres that were replanted to soybeans.

If he re-seeded to cotton, all operations would be reported since this is still cotton.

Field operations on cotton which was later destroyed to comply with a government program or the operations after compliance should be excluded here.

For example, if a producer planted 100 acres of cotton but later destroyed 15 acres, only the operations on the 85 acres that were kept in production should be counted.

This section should be completed by having the operator describe all of the field operations performed on the cotton. A machine code sheet is provided for you to give to the respondent. The machine code sheet (SC-4) contains a listing of most machines used in field operations. Let the respondent give you the codes of the machines he used.

SECTION X - FIELD OPERATIONS

Column 1 — Record the operator's oral listing of the machines used, such as plow, disk, harrow, combine, etc. If any machine operation is reported for which a machine code is not available, be as descriptive as possible in the margin as to the machine used or ask the farmer if the machine could be describe as same type of one of the listed machines.

Column 2 — Using the machinery list provided SC-4, (yellow), enter the proper code for the machine. Since the operator has a copy of the machinery list, he may choose to find the codes for you. If two machines are pulled together (in tandem), list the first implement in column 2. The second or third tandem equipment requires additional lines and are discussed on the next page.

SECTION X - FIELD OPERATIONS

Columns 3 and 4

Enter in column 3 the size of the equipment listed in column 1. Enter both the width of the area covered by the equipment on one pass over the field and the code specifying the unit of width. Size relates to the swath covered by the machine and not necessarily the structural width of the equipment. For instance, a broadcast fertilizer spreader may be only 6 feet wide but it spreads fertilizer over a swath of 30-40 feet. In this case, 35 feet would be an appropriate entry.

Column 5

Enter the line number of the truck or tractor from the previous sections used to pull the equipment. If the equipment were self-propelled, enter a "99". If two tractors were used simultaneously to pull one piece of equipment, write a note at the bottom of the page. If horses or mules were used to pull the equipment, enter a "77".

Column 6

Record the total acres covered for all times this machine was pulled by the truck or tractor listed in column 5. For example, if 100 acres were disked 3 times enter 300 acres in column 6.

For land forming equipment, column 6 should be left blank. These machines are used to make or close ditches and the entire field acreage is not covered. All that needs to be recorded is which of these specific machines are used on the cotton.

Columns 7 and 8

If any of the equipment listed in column 1 were purchased, new or used, by the operator since January 1, 1981, record the last 2 digits of the year purchased in column 7 and the purchase price to the nearest whole dollar in column 8.

SECTION X - FIELD OPERATIONS

Questions recorded in this section with regard to fertilizer and chemical applications should agree with that reported earlier in Sections C, page 7, and U, page 28. For example, if a fertilizer was reported in section C as self-applied, then the operation of applying this fertilizer should appear here. If in section U a chemical was reported as custom applied, then the operation of applying this chemical should not appear here. It may help to finish this section by asking the operator what operations, if any, were missed.

It should already have been noted that this year we are not subsampling within a crop. For example, all the COP questions refer to the average practice without regard to cropping practice. A cotton farmer may have both irrigated and non-irrigated acres on the same operation. If the operation has more than one cropping practice for the same crop and the field operations are different for each, start with the largest acreage and get the pertinent information. Then choose the next largest acreage and continue. If the field operation and the machines used are identical, go to the earlier line describing the machinery and add in the additional acres. There are two very important aspects to this section: 1) we need to identify every machine and the total acres it covered; and 2) we need to know the cost if purchased after January 1, 1981.

In this example the farm had 300 acres of cotton, 200 were irrigated and 100 were dryland. Field operations were slightly different between the two. To handle this type of mixed situation, start with the largest acreage or in this case the irrigated acres.

SECTION X - FIELD OPERATIONS

The farmer says he plowed all 200 acres with a regular, 4 bottom plow, using the International tractor. To code this, write "plow" in column 1 and enter machine code 6 in column 2. Enter 4 in column 3 and 3 in column 4 to show the size as 4 bottoms or moldboards. The tractor was from line 1 on page 30 so enter a "1" in column 5. The farmer plowed all 200 acres once, so enter 200 in column 6. He bought the plow prior to January 1, 1981, so leave columns 7 and 8 blank.

The farmer then reported the other operations, including tandem for the irrigated acres and these are shown in the example.

Now go to the non-irrigated acres. When the farmer reports an identical (same machine and tractor) operation to one already listed, go to the line where it was originally listed and add in the additional acres. If the machine or tractor are <u>not</u> identical to what was previously listed, list it separately.

Begin with the first operation performed after harvest of the preceding crop. This will probably consist of a stalk shredding or a tillage operation depending upon the previous crop. This will be performed in the fall of 1986 or the spring of 1987 and after harvest of the 1986 crops. In the case of crops grown on fallow, the field operations listed should include the fallow operations. Fallow is defined as 12 months without a harvested crop.

<u>Exclude</u> custom operations and operations involving hauling of the crop. <u>Include</u> the raking, baling and hauling of straw bales, where applicable.

SECTION X - FIELD OPERATIONS

Tandem Field Operations

In many cases a farmer will perform 2 or more field operations at the same time. For example, in the 1984 FCRS for rice, it was not uncommon to find a spike tooth harrow connected to a field cultivator, both pulled simultaneously by the same tractor. Fertilizer and chemical applicators are other examples of common tandem operations.

In this year's FCRS we are recording tandem operations the same as in 1986. The reason for this is that by asking equipment purchase prices (column 8), we need each separate item of equipment more fully identified.

Therefore, when the farmer reports a tandem field operation:

1. Record the first piece of equipment as you would any other piece.

2. On the next line, record the machinery code of the second piece of equipment (the tandem operation) in column 2. Skip columns 3 & 4.

3. In column 5 enter the <u>cell number</u> where the line number of the trucks or tractor pulling the pieces is recorded. This will tell us which trucks or tractor is providing the power. Skip column 6.

4. Enter the year purchased and purchase price, if applicable.

5. If a third, fourth, or more pieces are used in tandem, repeat 2, 3, and 4.

Be sure information and each column is obtained (including columns 7 and 8 if the equipment was purchased since January 1, 1981) for every piece of equipment used to grow the cotton.

SECTION X - FIELD OPERATIONS

In completing this section, it is recommended to start after harvest of the preceding crop and go through in order of the operations performed through to harvest of the cotton. However, if you have gone down half or three-fourths of the page and the respondent suddenly recalls an operation he forgot at the beginning, add the forgotten operation at the end and draw an arrow in the margin showing where it belonged. If the operator repeated an operation, you can add the acres together as long as the size of the tractor and machine are the same.

The table has space for only 15 pieces of equipment. If more space is needed, use the worksheet (WS-7) provided.

Record the number of supplements (WS-7) used at the bottom of the page in the cell box 009.

SECTION X - FIELD OPERATIONS

DESCRIPTION AND CODES OF FARM IMPLEMENTS

PLOWS

Chisel Plow (1)	A primary tillage machine either integral or trailing that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used ranging from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 10 inches.
Coulter-Plow (2)	A multi-purpose machine with one or two ranks of coulters, usually smooth or notched rim, followed by two or three ranks of chisel standards with a wide selection of ground engaging tools. The main purpose of the coulters is to cut through the crop residue in order to reduce plugging of the chisel standards. This is a primary tillage tool.
Subsoil Plow-Subsoil Chisel, V-Ripper (3)	A heavy tillage tool either toolbar mounted or trailing that has from one to 13 heavy shanks often with a parabolic curve. These shanks standards usually are fitted with replacement chisel points and can penetrate the soil up to 22 inches. The standards can be fitted with various auxiliary tools such as knives or lister bottoms. This allows the machine to deep-rib the soil and form beds at the same item.
Deep Ripper (4)	Similar to V-Ripper. For deep plowing.
Disk Plow (5)	A machine that does essentially the same work as the moldboard plow but has from one to ten large discs set at an angle to the direction of travel. The discs are mounted on individual beams or shanks. It is used in hard ground and where a regular moldboard plow does not scour well.

SECTION X - FIELD OPERATIONS

Plows (Continued)

Moldboard Plows (6 & 7)	A machine with one or more (up to 18) curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble. Moldboard plows may be made with one set of moldboards or with two sets. The two-way plows have two sets of moldboards, one left-handed and the other right. This allows the plow to be rotated so that all of the soil can be turned in the same direction. This eliminates dead furrows etc. This plow is especially used in irrigated areas to help maintain the level and slope of a field for furrow or bench irrigated.
Stubble-Mulch Plows (8)	Usually a tool bar or trailing machine with one or more standards that can be fitted with sweeps of various angles of penetration and several widths. Does not turn the soil over. Slightly mixes soil and stubble. (Noble blade).
Disk-Chisels (10)	A multi-purpose machine essentially a single disk followed by two or more ranks of chisel shanks.
Offset Disk Light-or-Heavy Duty (11 & 12)	A simple offset disk is the equivalent of one side of a tandem. All discs in each rank throw the soil in the same direction. Offset disks may vary in size from five feet to 35 feet or larger. The larger offsets have several disc units in each rank in order to gain flexibility. Types of disc blades may be cone or spherical and have diameters as large as 30 inches for extra heavy duty conditions. Offsets have several disc units in each rank in order to gain flexibility. Type of disc blades may be one or spherical and have diameters as large as 30 inches for extra heavy duty conditions.

SECTION X - FIELD OPERATIONS

Plows (Continued)

One-way (Disk-Tiller) (13)	A machine used mainly in the plains and Northwestern areas as a primary tillage tool. It mainly consists of a series of spherical disc blades, 20-60 inches in diameter, set on a single solid shaft. This machine throws the soil all in one direction. Sizes range from ten to twenty feet with multiple hitches available. One-ways have been replaced to some extent by chisel plows in many areas.
Single Disk (14)	Two sets of disc blades that throw the soil out from the center when angled. Size may vary from five to 40 or more feet. Used primarily as a secondary tillage tool. Most single disks have been replaced by tandems, offset or chisel plows.

DISKS (DISK - HARROW)

Tandem-Disk (Regular, Plowing or Heavy Duty) (15 & 16)	Two gangs of disc blades hitched in tandem; the front set throws the soil outward and the rear set throws it inward - width of cut may vary from 5 feet up to 35 or more feet. The blades may have different spacing between blades. 7, 9, and 11 inches are most common. The diameter of each blade may vary from 16 to as much as 24 inches. The shape of each blade may be either cone or spherical in shape. The cone blades are mainly for use in heavy soil conditions for primary tillage. These machines may be integral, 3 point hitch mount, trailing, double tandem or other configurations.

CULTIVATORS

Field Cultivator (20)	An implement similar to the chisel plow except of lighter construction and with the shanks closer together, about six inches overall. The shanks are usually of a spring steel, vibra-shank type. Ground engaging tools may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

SECTION X - FIELD OPERATIONS

Furrow-out Cultivator (21)	A row cultivator of the shovel variety where a fairly large shovel is placed to operate between the rows and open a furrow for irrigation. Thus, weeds are cultivated out and irrigation ditches are formed in one pass.
Rotary Hoe (22)	A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap. Rotary hoes are usually pulled at speeds of 6 mph and above and may be hitched to cover up to 50 feet or more.
Row Cultivator (Shank, Rolling, Lister, Disk) (23 & 24)	An implement with shanks arranged in such a manner that rows of crops can pass through without damage while the weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from one to twenty-four rows. Most are rear tool-bar or front mounted on tractors.
Field Conditioner, Seed Bed Conditioner, Soil Conditioner, Scratcher (30)	A lightweight wheeled tillage tool, usually two or three bars or ranks of spring steel teeth spaced 12-18 inches apart on the bars. Tine-tooth attachment available 30-60 feet wide.
Finishing Harrow (31)	Spiral cutting blade reels followed by spike teeth or field cultivator shanks, (2 or more ranks) possibly another rank of spiral knives and a smoothing board of wood or steel.

SECTION X - FIELD OPERATIONS

Flex-Tine Tooth (Coil Tine) (32 & 33)	Usually 5.5 to 6 foot sections of five bars or ranks. Teeth are spring steel about 5/16" in diameter and usually about 10 inches long. Teeth are formed in a spring coil and bolted to the bar, or set in rubber and bolted to the bar. Usually 50 teeth for 6 foot sections. At field speed, 3 1/2-5 mph, the tines vibrate in a circular motion to break clods, smooth seedbeds and kill weeds. Can be hitched up to 10 sections in one unit.
Rail, Pipe, Plank, Etc. (34)	Makeshift device used alone or in tandem with another implement to smooth soil or crunch clods.
Rod Weeder (35)	A steel rod usually square, 7/8 or 1 inch diameter-rotating in bearings on shanks. Rotation of rod is in reverse direction. Power for rod rotation is either from the drive wheels on the machine or hydraulic from the tractor. Some makes have a free-wheeling rod. Sections are normally 10 ft. wide but can be found to make-up units to 80 ft. Used in summer fallow areas and on relatively rock-free ground.
Roller Harrow (36)	Two ranks of packer rollers (smooth "vee" toothed "vee", crow foot, sprocket, birdfoot, or serrated type). Two or more ranks of chisel type teeth in between. Packer roller wheels turn independently of each other. 10-16 feet in size.

HARROWS

Spike Tooth (37)	Usually 5-6 foot sections of five bars or ranks with 7-8 steel spikes or teeth per bar. Angle of spikes is adjustable. Can be hitched up to 8 or 10 sections in one unit.

SECTION X - FIELD OPERATIONS

Spring Tooth Harrow (38)	Usually built in sections - 3-4 feet in width. Some wheeled models have a ten foot center section with wings to make up to a 57 foot machine. Teeth are spaced 12 inches on center on 3 bar models and 18 inches on 4 bar models. The teeth are spring steel and about 1 3/4 inches wide with a single or double curve. Points are replaceable on many models. The wheel-less, drag models have metal skids for transport and depth control.

BEDDERS

Disk or Lister Bedder (41)	An implement, usually 2 to 8 row used to make beds for seed planting using either disk blades or lister bottoms. Can be used with planters to plant either on the bed or in the furrow. Also used to break or "bust" the beds.
Bedder-Shaper (42)	A bedder with a forming device that flattens or shapes the bed in preparation for seeding. Shapers are sometimes used as a single toolbar implement. Planters may be attached.
Lister (Middle Buster or Breaker (43)	Same as bedder but lister (plow type) bottoms. Different types of bottoms available (hard land, general purpose, soft land and planter sweeps).
Rotovator-Bedder (44)	Same as disk or lister bedder except uses PTO powered knives to form beds.
Seed Bed Roller, Flat Roller (45)	Flat or concave rim wheel rollers. Used to pack soil in rows immediately before or after planting.

SECTION X - FIELD OPERATIONS

Subsoil-Bedder (Ripper-Hipper, Tiller, No-till Disk Bedder) (46)	Any type bedder either attached to a subsoil shank or as a separate bedder attached behind a subsoiler shank.

PACKERS

Culti-Packer (Pulverizer) (50)	An implement with a series of heavy crowfoot, inverted V-rim or serrated rim wheels running independently on a shaft. May be a single or tandem unit. Main uses of this implement are to firm the seed beds and reduce the size of clods and lumps of soil.
Plow Packer (51)	A packer designed to be pulled behind a moldboard plow with or with our a drill. Packer unit, may be spiral rod, crowfoot, inverted V, cogged or other.
Roller Packer (52)	Smooth roller or flat wheels on a shaft used to firm the seed bed and crush clods. May be home-made.

SECTION X - FIELD OPERATIONS

MISCELLANEOUS TILLAGE

Landall, Do-all (60)	A multi-tillage machine made up to 2 to 4 ranks of shovels, disks, coulters, blades or basket rollers.
Mulch-Treader, Picker-Treader (61)	Implement with tined wheels on a gang shaft that can be angled like a section of a tandem or single disk. Can be set up as a separate machine or as an attachment behind a stubble mulch plow. Tined wheels resemble rotary hoe wheels.
Roto-Tiller (62)	A series of bolo or slicer blades attached to a rotating shaft. Used as a primary or secondary tillage implement. Can be used in tandem with planting equipment as a minimum-till system. Mounted motor or PTO powered.
Roterra, Lely (63)	A machine with several sets of counter-rotating vertical tines that rotate with an overlapping action. The result is a stirring action; top soil remains on top, the soil is not turned over. Various attachments such as planters and sprayers are available. Tillage, planting, pesticide application and incorporation is possible in one trip.
Sand-fighter (64)	An implement used as an aid in controlling wind erosion. Essentially a shaft or bar with a frame and bearings to allow the shaft to rotate. Blades or teeth, about ten inches long and 2-3 inches wide, are welded to the shaft at intervals. The teeth enter the soil as the machine is pulled forward. This digging action roughens the soil and retards wind erosion. Sizes range up to 24 rows (72 ft).

SECTION X - FIELD OPERATIONS

FERTILIZER APPLICATORS, TRACTOR MOUNTED

Anhydrous (70)	Not very common. Supply tank tractor mounted with chisel shanks and injections on tool bar.
Dry (71)	(Includes lime and gypsum applicators) - Three point hitch mounted single or dual spinners with supply tank. Pneumatic - air delivery system through hoses to soil surface or below surface with hollow hoe shanks. The supply and distribution system is mounted on a tool bar. Drill Type- Drill type hopper with agitator and metering device to drop material on the surfaces of the soil.
Liquid (72)	Usually spray nozzles or injector units on a total bar. Tanks mounted on tractor.

FERTILIZER APPLICATORS, TRAILER MOUNTED

Anhydrous (73)	Usually a 2 or 4 wheel supply trailer feeding a chisel plow with injector tubes on each shanks. Can be high or low pressure type.
Dry (74)	(Includes lime and gypsum applicators) - Distributes the material by revolving spinner, pneumatic system through tubes to soil surface or below and the agitator metered bottom drop drill type.
Liquid (75)	Various configurations of two or four wheel trailers. Most use a boom with spray nozzles to surface or foliage apply the material. PTO or mounted engine powered.
Aerial, Fixed or Rotary Wing (76)	Airplanes or helicopters with fertilizer distribution attachments. Not too common.
Attachment to Implement (77)	Usually drop dry type attached to a drill or planter but may be liquid or gas type that is injected into the soil.
Manure Spreader (78)	Any type, apron with rear beater, flail or liquid spreader with pump spreader.

SECTION X - FIELD OPERATIONS

Self-Propelled (79)	A self-powered implement; may spread dry or liquid fertilizer, usually dry.
Truck Spreader (80)	Any method of application that is mounted on a truck. These usually are dry-broadcast type spreaders.

CHEMICAL APPLICATORS

Aerial (Fixed or Rotary Wing) (90)	An airplane or helicopter fitted with tanks and a spray boom to apply pesticides at very low altitudes.
Attachment to Implement (91)	Granular or liquid spray unit attached to a tillage, cultivator or seeding implement.
Large Self-Propelled or Truck (92)	Large converted truck or specially built machine to spray liquid or apply dry chemicals.
Motor Cycle Sprayer (93)	A small spray unit mounted on a 3-wheel motor vehicle. Spray with a boom, with hand held guns or wiper type. Mostly used for spot spraying.
Small Self-Propelled Sprayer (94)	Light weight self-propelled implement, (Spra-Cope) to be used on field crops such as wheat or cotton.
Small Truck (Pick-up with Slide-in unit, Skid-in) (95)	Spraying mechanisms can be liquid boom, wiper, recirculating, micro-spray or dry spinner or tube delivery.
Tractor Mounted (96)	Supply tanks and spreading mechanism mounted on a tractor. Material may be spread by booms, recirculating sprayers, rope or wick wipers, row type nozzles or air blast. Facilitates spraying while cultivating.

SECTION X - FIELD OPERATIONS

Trailer Mounted (97)	Supply tanks and spreading mechanism mounted on a trailer pulled by tractor or other power vehicle. All types or spreading mechanisms.

DRILLS AND SEEDERS

Aerial Seeding (100)	Seeding by either fixed or rotary wing aircraft. Used some in rice areas and experimentally with other crops.
Broadcast Seeder (101)	Spinner type seeder, either tractor mounted (PTO or electric) or trailer mounted (wheel driven).
Drill-Air Delivery (102)	Same as conventional drill except seed is taken from a supply box through a manifold and blown by air through tubes to the seeding points.
Grain Drill (Hoe, Lister Shovel) (103)	Use lister bottoms, shovels, or hoes to prepare soil for seeds.
No-Till, Minimum-Till Drill, Zero- (Conventional) (104)	Usually fluted or ripped coulters that open up narrow prepared soil areas for the single or double disc drill shoes to deposit the seed in otherwise untilled soil. Herbicide attachments are available. Modified chisel plows with coulters also used.
Grain Drill (Disk) (105)	Seeder with seed box, metered seed feed through tubes to single or double disc openers. Tubes spaced 7", 9" or 10". May have fertilizer attachment.
Press Drill (106)	Drill with disks or lister bottoms with press wheels to firm soil around seed.

SECTION X - FIELD OPERATIONS

Lister Planter (111)	Planter mechanism either plate type or plateless, air or otherwise actuated. Seed is deposited in furrows made by lister bottoms either hard land or soft land type (may be equipped with fertilizer, insecticide, and/or herbicide attachments).
No-Till, Min-Till Planter (112)	Fluted coulters, rippled coulters and/or subsoil shanks used to open the untilled soil and prepare a narrow 2-4 inch tilled area for the planter units to deposit seeds. Usually used in conjunction with fertilizers, herbicides and insecticides.
Row Crop Planters, All Crops Planter, No Attachments (113 - 114)	Plate or plateless metering devices that drop seed through a boot or shank in a seed furrow or bed opened by a shoe or disc. Seed is covered by a press wheel. Planters may be trail type - wheel carried or tool bar mounted. Two to twenty-four rows.

SECTION X - FIELD OPERATIONS

HARVESTING EQUIPMENT

Combine, All Types (120 - 124 & 127 - 131)	An implement, self-propelled, PTO or mounted motor, that harvests crops either standing or in some cases picked up from windrows or swaths. The crop (grain) is separated from the straw, husks etc., straw, stalks, cobs and husks; cleaned and elevated into a holding tank for delivery into a truck, wagon or grain cart at intervals. Combines may be mounted motor or PTO driven; self-propelled with 2 wheels, 4 wheels or track drive. They can be set up for rice, cotton, peanuts, beans, wheat and all small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups. They may be fitted as hillside, sidehill or level land machines. Special cotton and other row crop heads are available.
Windrower-Swather (125 - 126)	A machine, either self-propelled or PTO, that cuts the standing hay or ripened grain with a reciprocating sickle aided by a revolving reel of four or more bats or sails. The cut material is deposited on a platform, either draper or auger type. The auger or drapers move the cut material either to the end or the center of the platform where it is discharged into the ground in a "windrow" or "swath". The hay swather may have metal and/or rubber rollers through which the hay passes. This "conditions" or "crimps" the hay to facilitate more rapid and uniform curing.

HARVESTING EQUIPMENT - COTTON

Chopper (stalk cutter) (140)	A machine with a ground driver reel with cutting blades, either angled or spiral, used to chop or cut cotton, cotton or other heavy stalks. Also does minor soil preparation.
Module builder (141)	A four-sided form having an openable rear door. It has a traversing, mechanical compacter and compressor seed cotton into high-density stacks.

SECTION X - FIELD OPERATIONS

Cotton Gleaner (Rood) (142, 145)	A cotton harvesting machine, usually ground driv. or PTO, pulled by a tractor that gleans or picks up loose picking or stripping or perhaps before harvest began.
Cotton Pickers (143 - 144)	A 2 to 4 implement usually tractor mounted or self-propelled that picks mature cotton from the bolls thru an intricate arrangement of spindles and doffers and deposits and cotton by means of an air stream into the holding basket. When full, the basket is emptied into trailer or cart for delivery to the gin at once or to a module builder. Pickers may make several trips over a field as ripening proceeds.
Cotton Strippers (146 - 148)	Made as self-propelled, PTO, pulled, or tractor mounted machines that pull or strip all of the bolls from the plant at one time over. Stripping is accomplished by rotating brushed and rubber flaps. Strippers may be 2-6 row or a platform type in some instances.
Trailer (149)	Used for transporting seed cotton form picker or stripper to gin.

HARVESTING EQUIPMENT - PEANUTS

Peanut Combine (150)	A peanut harvesting machine that picks up the windrow of peanuts left by the digger-shaker or and separates the peanuts from the vines. The peanuts go into a holding tank. Only PTO models are available. Peanut combines are used only on peanuts.
Peanut Digger-Shaker (151)	A machine, usually 2 or 4 row, that lifts the peanuts, vine and all; by means of long angled knives, from the soil. The soil is shaken from the vines with reel or chain type shakers and vines are deposited in a windrow.

SECTION X - FIELD OPERATIONS

Peanut Digger Shaker-Inverter (152)	Same as digger-shaker except vines in windrow are inverted so the peanuts lay on top of the vines.
Peanut Reshaker-Conditioner (153)	A machine used to fluff-up the windrows to enhance drying or conditioning.
Vine Cutter (154)	A device for cutting peanut vines from roots.
Wagon (155)	A wagon for hauling peanuts; can be used for drying peanuts.

TOBACCO HARVESTING EQUIPMENT

Combine (1 row) (201)	A self-propelled or tractor drawn machine (1 row) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (2 row) (202)	A self-propelled or tractor drawn machine (2 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Combine (4 row) (203)	A self-propelled or tractor drawn machine (4 rows) that mechanically removes 4 to 6 leaves per plant per trip across the field. Also called a mechanical harvester.
Once-over Harvester (204)	An automatic harvester that is designed to mechanically remove all the leaves from the stalk in one pass through the field. This machine is sometimes referred to as a stripper or a last-over harvester.

SECTION X - FIELD OPERATIONS

Priming Aid (Looping on sticks) (205)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field take small bunches of tobacco and place the butt ends at both sides of tobacco sticks and then wrap twine around the bunches of tobacco until the sticks are filled.
Priming Aid (Field racking) (206)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in bulk racks used for curing.
Priming Aid (Field box filling) (207)	Any of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field place tobacco leaves in big boxes used for curing.
Priming Aid (Other) (208)	Aid of several different types of self-propelled or tractor-drawn machines that allow workers to sit down and prime tobacco. Workers in the field or at the barns place tobacco for curing in other than machines 205, 206, and 207 above.
Trailer (Harvest) (209)	A tractor or truck pulled trailer used to carry tobacco from the field to the barn.
Transplanter (210)	A power-down transplanting machine is operated by a driver, and carries 2, 4, or 8 persons on "setters", who ride the machine and alternate in placing or guiding the plants into the mechanism which spaces them at the proper intervals in the row. The machine opens the furrow, dumps a measured quantity of water and draws the soil about the roots of the plants.
Tying Machine (211)	A machine that loops tobacco with an automatic tying or sewing machine. The tobacco leaves and sticks are placed on a moving conveyor belt which passes them under a sewing head. The leaves are attached to the stick by stitches at the butt end.

SECTION X - FIELD OPERATIONS

MOWERS AND BALERS

Amish Harvest (400)	Non-motorized device for harvesting hay.
Bale Wagon (401 - 402)	This tool can be simply a wagon or trailer with a wide flat bed used to haul bales. Likewise, it can be a self-propelled unit that picks up the bales and stacks them on the bed in a manner that allows the baler to be unloaded by power to form a compact stack of bales. PTO units are also available. Same units also are able to pick up the stacked bales for further transport.
Bale Loader (403)	A device, either ground or engine driven that picks up the bales from the ground and deposits the bales onto the trucks or trailer as it moves down the windrow of bales. Largely used for small rectangular bales but models for the large round bales are available.
Balers (404 - 407)	Balers pick the hay or straw up from a windrow and compact it into either round or square bales which may be small (40 - 125 pounds) or large (1000 to 2000 pounds). Balers may be motor mounted, PTO or self-propelled.
Rotary Mower-Cutter, Chopper (408)	A machine similar to a rotary lawn mower used largely to cut weeds and roadsides but may be used to harvest a crop for hay or to shred crop residue. Size range from 4 feet to 20 or more feet of cut when hitched in multiple units. Available in integral, semi-mounted and pull-type. Mostly PTO powered. Cuts by means by a rapidly rotating blade either rigid or flexible.
Mower Conditioner PTO (409)	Consists of a cutterbar, a reel, a pair of full-width conditioning rolls, and a deflector. Width ranges from 7 to 12 feet.

SECTION X - FIELD OPERATIONS

Mower Conditioner (410)	Self-propelled.
Disc Mower (411)	A mower with a number of cutting blades on rotating discs mounted on a bar. The discs are driven from the bottom by a series of flat gears. The entire bar and disks go under the crop as it is cut.
Drum Mower (411)	A series of rotary drums or cylinders with blades attached. The drums are driven by an enclosed gear or chain train from the top. PTO powered.
Flail Mower Shredder (Rotary Chopper) (412)	A machine that mows, cuts or shreds crops by means of steel blades or knives on a horizontal rotating shaft or drum. The high speed of the drum (about 1850-2000 RPM) cause the hinged knives to cut or shred the crop. Can be used to harvest hay or to shred crop residue. Range in size from 5 to 15 feet or more.
Sickle Mower (413)	A machine with a reciprocating cutting sickle that runs in a cutter bar with guards and ledger plates. Mowers may be 3 pt. mounted, semi-mounted, belly mounted or trail type. Usual sizes are 7 to 9 ft. sickle or cutter bars but some heavy cutters are only 5 foot.
Dump-Rake (414)	A series of large "C" shaped teeth attached a bar or frame. This frame can be raised or lowered alternately to pick up the hay and "dump" it into windrowers. Either ground or PTO powered. Sizes range from 8 to 32 or more feet.
Rake Side Delivery (415)	A rake with a four or five bar reel. This is set at an angle to the direction of travel. The reel rotates, either PTO or ground driven, in the opposite direction of the carrier or tractor wheels. This motion along with the angle sweeps the crop into a windrow on the left or the right. Raking swath is 7 to 9 feet.

SECTION X - FIELD OPERATIONS

Wheel-Rake (416)	A series of overlapping wheels, four to five feet in diameter with spring teeth on the rim of the wheels. The wheels are mounted on a bar or frame at 10 to 60 degree angle to the direction of travel. The wheels are turned by contact with the crop and the ground. The 5 wheel rake covers about 16 3/4 feet and the 7 wheel about 20 feet.
Stacker Mover (417)	A forklift-like device for moving hay stacks.
Stacker Automatic (418)	A device for compacting hay.

LAND FORMING OR SHAPING EQUIPMENT

Backhoe (500)	Large shovel or scoop operated with a mechanical arm. Often used for ditch digging.
Corrugator (501)	A device of various configurations that produces vee shaped indentions in the soil to aid in the distribution of irrigation water. The units may be mounted on a row cultivator for row crop or on a tool-bar for seeded crops.
Disk Border Maker (502)	Set of two single discs or two sets of 3 or more discs used to make borders for irrigation. Can be reversed to tear down borders. Usually mounted on a tool bar.
Ditch Closer (503)	A machine usually mounted on a 3-point hitch or on wheels pulled behind a tractor that pulls dirt together to fill in an irrigation or drainage ditch.
Ditcher (Vee Rotary) (504)	A machine either with a vee shaped blade or a rotary auger or fan that is used to cut field irrigation or drainage ditches. Either 3-point or trail mounted.

SECTION X - FIELD OPERATIONS

Float (505)	A device, usually homemade, that is used for minor rough levelling. Soil moving bars or blades may be made of wood or metal.
Land Plane-Leveler (506)	A machine used primarily to level land for irrigation or to improve drainage. This machine usually has two or more sets of wheels on a long wheelbase supporting one or more bowls, blades or baskets that are intended to carry soil from high points to low areas in a field. Some systems are controlled by a laser beam for precise levelling.
Levee-Plow-Disk (507)	A machine used to throw up levees or ridges between rice fields. Most machines have two sets of discs, each with one to three disc blades that throw the soil up into a levee. Most levee discs are toolbar mounted. The disc sets can be reversed to tear down the levees.
Rear Mounted (508)	A curved blade, 5 to 8 feet long and 15 to 24 inches deep, attached to the 3-point hitch of a tractor. Most can be angled sideways and up and down from ground level either manually or hydraulically. Used for ditching, back filling, scraping and rough levelling.

OTHER IMPLEMENTS

Chaff/Straw Saver (600)	An Attachment pulled behind a combine that bunches or stacks the chaff and/or straw as it comes from the combine. The small hay (straw) stocks are left in the field for later retrieval. The chaff or straw is used as feed or bedding.
Electric-Discharge Weed Killer (601)	A machine that has a PTO powered generator to produce an electric charge that uses the weed plant to complete an electrical circuit to the ground. The current causes the plant cells to rupture, killing the plant. Weeds must be taller than the plants in order for the method to be feasible. Utilizes a 50 KW generator powered by a 1000 RPM-PTO on a minimum 120 HP tractor.

SECTION X - FIELD OPERATIONS

Hay Wagon (602)	Flat bed wagon used to haul hay.
Off-field Thresher (603)	Stationary threshing machine.
Rock Picker (604)	A heavy duty machine with pick-up teeth or heavy duty rotating reels that deposits rocks and stones from "1" diameter to 500 pound boulders in a tank or bucket for removal from the field. Some rock pickers or harvesters are equipped with elevators that deposit the rocks directly into a truck or trailer.
Rock Windrower (605)	A heavy side-delivery or wheel type rake that moves the stones into windrows in order to speed up the process of rock picking.
Rodent (Gopher) Killer (606)	A machine with a sub-soil shank that allows poisoned bait to be injected into the soil at the same depth as the gopher burrows or runways. Fields are usually treated in a criss-cross pattern to get better coverage.
Rubber-Wheeled Weed Puller (607)	A series of paired rubber tired wheels set touching one another and rotating in opposite directions. As the machine moves forward at a level above the crop but below the weed tops, the weeds are caught by the spinning wheels and are pulled out.
Flail (608)	Same as flail mower. See 412.
Rotary (609)	Same as a rotary mower. See 408.

SECTION X - FIELD OPERATIONS

Silage Harvester (610)	Similar to forage harvester for chopping fodder.
Stalk Shredder (611)	A rotobeater with hard metal rods or cutting blades attached to a revolving horizontal shaft.
Tractor or Truck-no Attachments (612)	Self explanatory.

Y CUSTOM and TECHNICAL SERVICES — COTTON Y

1. Was any agricultural **service or custom work** done on this operation for a fee or on a contract basis for the cotton? *[To be considered custom work, both machinery and labor must be provided.]*

☑ YES ☐ NO - *[go to 3]*

2. I shall read several types of custom operations, please tell me if it was used or not and if so, what it cost.

(1)	(2) Total cost — $ — OR	(3) Cost per unit dol/cents and	(4) Total units
2a. land leveling? ☑ NO ☐ YES —►	519	__•__	____
2b. plowing? ☐ NO ☑ YES —►	520 3,000	__•__	____
2c. planting? ☑ NO ☐ YES —►	521	__•__	____
2d. cultivating? ☑ NO ☐ YES —►	522	__•__	____
2e. harvesting and hauling? ☑ NO ☐ YES —►	523	__•__	____
2f. harvesting only? ☐ NO ☑ YES —►	524 1,000	__•__	____
2g. module hauling only? ☑ NO ☐ YES —►	924	__•__	____
2h. hauling with trailers only? ☑ NO ☐ YES —►	923	__•__	____
2i. ginning? ☑ NO ☐ YES —►	922	__•__	____

3. Were any technical services, such as soil testing or scouting, performed on the cotton for a fee?

☐ YES - 3a. What was the total cost?.....dollars 526 •

OR cost/unit-dollars & cents __•__

and total units

☑ NO

SECTION Y - CUSTOM WORK

Purpose To obtain data for certain custom operations performed on the operation's 1987 cotton.

Definition Custom work is the hiring of a machine service which provides both the machinery required and the labor necessary to complete the operation. Frequently, a respondent may rent a machine and operate it himself. This is not a custom service but rather normal machinery rental. Machinery rental operations should be reported in Section X, Field Operations.

Item 1 Check the appropriate box indicating if the operator hired any custom work done on the 1987 cotton. Exclude any custom fertilizer or chemical application charges recorded earlier in the questionnaire. Exclude "swap" labor.

Complete the item 2 if "Yes" is checked.

Item 2 This item is the <u>total cost</u> of a custom operation that will be used in tabulations. This can be obtained by either of two ways. First, if the operator knows the total cost for a particular custom operation, enter this figure in column 2 and go to the next preprinted operation. <u>This is all of the information that is needed.</u>

If the operator does not know the total cost, then the second method is to obtain the cost per unit (acre, hour, ton, etc.) for the custom operation (enter in column 3) and then get the total number of units payment was made on and record in column 4. The total cost can then be computed in the clerical edit.

Column 1 Custom operations are prelisted. If an operation is reported that is not prelisted, make notes explaining the operation. When recording any data associated with custom harvesting, determine if other operations were included. Check a NO or YES after asking about the pre-listed operation.

SECTION Y - CUSTOM WORK

Column 2 — Enter the total cost associated with each operation. **If this column is completed, skip columns 3 and 4.**

Column 3 — Record the cost per unit associated with each operation. Entries are to be in dollars and cents. **If there is an entry in column 3 there must also be an entry in column 4.**

Column 4 — Enter the corresponding total units for which there was payment. For computing the total cost, it is irrelevant what these units are.

Z HANDLING — COTTON Z

1. Now I have a few questions on handling the cotton and getting it to the gin.

What is the average one-way mileage to the cotton gin normally used?..... 934

2. Was all of the 1987 cotton custom harvested?

☐ YES - *[go to AA]* ☐ NO

2a. What percent of the cotton crop (not custom harvested) was handled by trailers and modules (or ricks)?

— % —

(1) trailers..... 933

(2) modules (or ricks)..... 932

100%

2b. *[If no trailers were used, go to Item 2d.]*

What was the average capacity for all trailers? .....bales 931

2c. How many trailers did this operation own in 1987? .....number 930

2d. *[If no modules were used, go to AA]*

During 1987, was a module builder rented?

☐ YES - (1) What was charged per bale? .....dollars & cents 929 __•__

☐ NO

2e. During 1987, did this operation own or have ownership interest in a module builder?

☐ YES - (1) How many acres of cotton (including acreage from other operations) were handled per module builder? .....acres 928

☐ NO

SECTION Z - HANDLING COTTON

Item 1 — Record in miles the average one-way distance to the cotton gin that the respondent usually uses. If more than one gin is used, average the distances.

Item 2 — Determine if all the 1987 cotton was custom harvested. If not, ask item 2a and continue.

Item 2a(1) — Record the percent of the cotton harvested by the respondent that was handled by trailer.

Item 2a(2) — Record the percent of cotton harvested by the respondent that was handled by cotton modules or ricks.

Item 2b — Record the average capacity of trailers if 2a(1) was positive. Most trailers have a capacity of 5-8 bales.

Item 2c — If trailers were used, record the total number owned by this operation in 1987.

Item 2d — If modules were used (item 2a(2) positive) and some were rested, record the rental charge in dollars and cents per bale.

Item 2e — If the operator owned or had an ownership interest in a module builder in 1987, recorder the average acres of cotton handled per module builder.

AA IRRIGATION — COTTON AA

1. *[If cotton was not irrigated—see Q—go to BB.]*

I will now mention several sources of irrigation water. Please tell me the number of acres of cotton irrigated from each source and the total number of other crop acres, if any.

(1) Source	(2) [check] None	(3) cotton - acres -	(4) [check] None	(5) Crops OTHER than cotton - acres -
1a. wells	☐	747 100	☐	748 50
1b. purchased water	☑	749	☑	750
1c. surface sources (rivers, lake, ponds) which were—				
(1) free flowing	☑	751	☑	752
(2) pumped by your own pumps	☑	753	☑	754
(3) pumped by private association pumps (and no charge for water)	☑	755	☑	756
1d. OTHER sources (such as return water or waste water)	☑	757	☑	758
[Add 1a + 1b + 1c + 1d. Enter below.]				
1e. TOTAL	☐	759 100	☐	760 50

CHAPTER 11 - COTTON

SECTION AA - IRRIGATION

Purpose

The purpose of this section is to obtain a description of the irrigation equipment and irrigation practices used by this operation in the production of its cotton. Information obtained will be used to estimate irrigation costs.

Irrigation

Information recorded here explains where and how water is obtained, what equipment is used in obtaining the water and conveying it to the fields, and what equipment is used to apply the water to cotton.

Include all applications of water that were made to benefit the 1987 cotton crop including those which may had been made in the fall of 1986.

Definitions

Surface Water

Water stored in impounded or dug pounds, lakes, or flowing in streams and rivers.

Ground Water

Water from wells.

Pumping Lift

The vertical distance from the water level during pumping to the outlet at the surface of the ground. It is the static water level plus draw-down.

Drilled Depth

The vertical distance from the surface of the ground to the bottom of the drilled hole.

Acre-Inch

A quantity of water sufficient to cover one acre of land one inch deep.

SECTION AA - IRRIGATION

Head Ditches

The main ditch at the top of each field or basin from which water is drawn for application to the field.

Item 1 Source of Water

Consider only water sources used to irrigate acreage on which cotton was produced in 1987. Do not list sources if the cotton was not irrigated by that source. For example, in 1987 a producer purchased water from an irrigation district and on an adjoining acreage pumps from his own wells. He produced 200 acres of oats on the land for which he purchased water. He produced 300 acres of cotton and 200 acres of barley on the land irrigated by his own pumps. Do not record "purchased water" as a source of water for any acreage since the source was used entirely for his oat crop. Do record 300 cotton acres irrigated and 200 other acres irrigated by "wells".

Record the number of cotton acres irrigated with water obtained from each source listed. Record the number of acres of cotton irrigated by each source and the number of all other crops irrigated by each source from which cotton was also irrigated.

If the respondent's only source of irrigation water is wells (groundwater), record the total number of cotton acres and the total number of other irrigated acres in cells 747 and 748. If the respondent obtained all irrigation water from an irrigation company or district, record the acres of cotton in cell 749. **In this situation, the operator or land owner must pay annual fees or charges for each irrigation and sometimes may pay both.** If the respondent obtained irrigation water from more than one source, record the acreage of cotton irrigated from each source.

SECTION AA - IRRIGATION

Often, a producer near an area served by an irrigation district may be charged a fee by the irrigation district even though he does not receive any water from that district. This fee reflects the value of the ground-water recharge resulting from the use of irrigation district water in the area. In this situation, do not record any acres as irrigated with purchased water.

If the respondent obtained water to irrigate cotton from surface sources (rivers, lakes, ponds, etc.), record the acres irrigated in cells, 751, 753, or 755. Record acres irrigated with free flowing water in cell 751. Record acres irrigated with water pumped by the operator's pump in cell 753. Include in cell 755 acres irrigated using water pumped by privately owned pumping companies or associations where there is no cost for the water itself. Such an arrangement is commonly found along the Snake River in Idaho.

In some areas, water may be obtained from more than one source and conveyed to the same fields. In this case obtain the respondent's best estimate of the proportion of water obtained from each source and divide by acres so that the total in cell 759 equals the total acres of the irrigated cotton.

Water provided by an irrigation district should be considered "purchased water" regardless of the source to the irrigation district. The irrigation district may obtain all of its water by pumping from deep wells or via canal from a lake, reservoir, or stream. All acreages irrigated with water provided by the irrigation district or canal company should be listed in item 1b.

SECTION AA - IRRIGATION

In some cases, farmers may have formed an association to provide water. These associations may maintain pumps and ditches and charge the individual farmer for his share of these costs. If the association does not charge the producer for water, but only for the cost of delivery, then report acres irrigated in item 1c(3) "pumped by private association pumps".

Do not record any association (in item 1c3) receiving water from Bureau of Reclamation, Army Corps of Engineers, or State Water Projects, even though some associations (and irrigation districts) may have negotiated for free water from these sources.

Item 2 Well Water

Consider only the wells used to irrigate the 1987 cotton. They need not be used exclusively for the cotton but, must have been used at least partially to irrigate the acreage. For our example, the farmer has 5 wells. Two of these wells provided water exclusively for cotton in 1987. One well was used for irrigating both cotton and barley and two wells provided water exclusively for barley. Record "3" wells in cell 761.

For the wells used to irrigate cotton, record the average depth, average pumping lift, and average well casing diameter. The average depth refers to the average drilled depth, as defined earlier. The average pumping lift was also defined earlier. The depth and lift will depend on the water table level and the amount of drawdown on that water table during pumping. The average well casing will probably range from 12 to 36 inches, with 20 inch casings being relatively standard throughout much of the West.

Question 2e attempts to survey the prevalence of ground water pumping restrictions. If these restrictions are in effect, check YES, and ask the respondent if he or she would have pumped more water if the restriction had not prevented it.

SECTION AA - IRRIGATION

Item 3 Purchased Water

If the producer reported purchased water applied to the cotton (cell 749), report the source and cost of that water here. Include the cost for water applied to all crop acres.

Circle the principal source of that purchased water. Some producers may belong to irrigation districts which receive water from Bureau of Reclamation projects, Corps of Engineer projects, state water projects, and the district's own wells. Obtain the producers estimate of the source that provided the largest quantity of water to his irrigation district in 1987. The price charged by such multi-source irrigation districts will be a weighted average of the costs of obtaining water from each source.

Item 3a Report the cost of purchased water, either as a total cost, or the cost per acre, if the charge is assessed this way. Report the cost of water applied to the total irrigated acreage. If the irrigation district charges per acre-foot delivered, compute the total costs.

Item 4 Surface Sources

Enter the average <u>vertical</u> lift from the water source to the cotton fields. This is not the distance from the water source but rather the change in elevation between the water source and the fields.

AA irrigation — cotton — continued AA

2. *[If no cotton was irrigated from WELLS, IC 747 zero, go to 3]*

2a. How many wells were used to irrigate the cotton? 761 3

2b. What was the (average) depth? 762 325

2c. the (average) pumping lift? 763 110

2d. the (average) well casing diameter? 764 20

2e. Do laws and regulations impose restrictions on the amount of ground water this operation is allowed to pump? 765

☐ YES ☐ NO - *[go to 3]*

(1) Would this operation have pumped more groundwater if legal restrictions had not prevented it? 766

☐ YES ☐ NO

3. *[If no cotton was irrigated with PURCHASED WATER, IC 749 zero, go to 4.]*

Where did the purchased water come from? *[circle code]* 767

Bureau of Reclamation 1
Army Corps of Engineers 2
State Project 3
Private Project 4
Some other source 5
[Specify] _____

3a. What was its total cost? ..... dollars 768

OR

What was the cost per acre? ..... dollars 769

4. *[If no cotton was irrigated from SURFACE SOURCES, IC 753 zero, go to 5.]*

4a. If the water had to be pumped, what was the average vertical lift to the cotton irrigation area? ..... ft 772

SECTION AA - IRRIGATION

Item 5 Surface Sources with Private Association Pumping

Obtain data on the pumping costs of surface water provided by a private pumping association where there is no cost for the water itself. (If cell 755 is zero skip to item 6). The cost reported here will include primarily power costs but may also include costs for repair and maintenance of the pumps and pump ownership costs. Record either the total cost for this crop (cell 837) or cost per acre (cell 838).

Item 6 Irrigation Pump Power Units

Here we want to obtain descriptions of the power units used to perform all of the pumping of irrigation water for cotton. If no pumps were used to deliver water to the fields or to apply it, skip to item 7.

Include in this section all power units used in 1987 for irrigation of the cotton. Include power units used with tailwater or wastewater pits or pump-back systems.

In areas where water is applied with sprinklers, it is common to have two pumps in operation: one pump to pump water from the well, and a booster pump to pressurize the water through the sprinkler system. Record each of these separately.

<u>Do not include</u> information in this section about power units owned and operated by an irrigation company or district even if the respondent is part owner of the irrigation company.

AA irrigation — cotton — continued AA

5. *[If no cotton was irrigated from PRIVATE ASSOCIATION PUMPS, IC 755 zero, go to 6.]*

— $ —

What was the total pumping and overhead cost of private assocation water for this cotton crop? ..... | 837 |

OR

What was the pumping and overhead cost per acre for the cotton? .....dollars & cents | 838 _•__ |

6. What pumps were used?
[Exclude all public and private project pumps.]
[If none, go to Item 7.]

(1) *[water source or pump utilization]*	(2) What was it powered by? *[enter code]*	(3) How many of these were used?	(4) Size?	(5) WHAT WAS THEIR (AVERAGE)— Pumping rate per unit in GPM?	(6) Hours of use per unit for ALL crops?
Booster Pump 1/	773 1	774 3	775 200	776 1400	777 3000
Wells	778 1	779 3	780 600	781 1500	782 3000
	783	784	785	786	787

1/ [Pumps that are used solely to provide pressure in the pipeline.]

Column (1)	Column (2)	Column (4)
Water Sources or Pump Utilization Types	Possible fuel/ power types	Size
Wells	Electric	Horsepower
Rivers, lakes, ponds	Gasoline	Cubic Inches
Tailwater, wastewater pits	Diesel.....	Cubic Inches
Holding ponds	LP Gas.....	Cubic Inches
Irrigation above ditch or canal	Natural Gas	Cubic Inches
	Tractor *[code = 9]*....	Horsepower

SECTION AA - IRRIGATION

Column 1 — Enter a narrative description of the water source/pump utilization listed at the bottom of the table.

Column 2 — Enter the code of the fuel or power type that applies to the power unit(s) listed on each line. Codes to use are:

Electricity	= 1	LP Gas	= 5
Gasoline	= 2	Natural Gas	= 6
Diesel	= 3	Tractor	= 9

Column 3 — Enter the number of units of that particular size and power type. In our example, the producer has 3 wells that are pumped by 600 horsepower electric motors. Each well also uses a 200 horsepower electric motor to pressurize the water for sprinkler application.

The operation may also pressurize water from an irrigation company for application by sprinkler.

Column 4 — Record the average size of the unit.

Column 5 — Enter the average pumping rate in gallons per minute (GPM) for the pump(s) listed on each line. Pumping rates should be those found during normal operation.

The booster pump should pump at the same rate as the well pump. If the well water is pumped into a canal or other storage facility, and then applied with a pump, do not consider this a booster pump, but code the water source appropriately.

AA irrigation — cotton — continued AA

7. What irrigation system(s) was used to apply the water to the cotton? *[check system in col. (1) and fill in cols. (2)-(6)]*

(1) System	(2) How many acres of cotton were irrigated?	(3) How many times was it irrigated?	(4) What were the average inches of water applied each time?	(5) How many acres of ALL crops were irrigated?	(6) How many systems were there?
☐ hand moved	788	789	790		
☐ solid set/season	791	792	793		
☐ side roll (wheel line)	794	795	796		
☐ center pivot ☐ low pressure ☐ high pressure	797	798	799	800	801
☐ big gun (cable tow)	802	803	804	805	806
☐ gated-pipe ..	807	808	809	810	811
☐ siphon tubes	812	813			
☐ flood	814 *	815			
☐ OTHER	816 *	817			
	818 *	819			

7a. Any other systems? *[enter above]*

7b. *[Add Column (2) and enter total below in 7c.]*

7c. TOTAL... 820

[Does acreage in 7c check with total irrigated acres of cotton in Q? ☐ YES - go to 7e. ☐ NO - recheck totals. If discrepancy remains, ask.]

7d. Were any of these acres irrigated with two or more application systems?

☐ YES ☐ NO 821

SECTION AA - IRRIGATION

Column 6 — Report the average hours used by each power unit. In our example, the respondent estimates that his wells and booster each run 1000 hours per year. He informs us that the pumps pressurizing the irrigation company water run 24 hours for the 4 1/2 months that water is delivered. Irrigation pipe is moved so that the pumps irrigate a fairly large acreage. Of the 135 days that he irrigates (4 1/2 months X 30 days per month) he estimates that the pumps average being down 10 days each for repairs, and time lost when sections of pipe are moved. We estimate that the pumps average 3000 hours each (125 days X 24 hours per day).

Item 7 — For this final item, record information which describes the equipment and practices used to apply water to cotton.

Descriptions — Sprinklers:

Hand-Move Sprinkler System: Portable aluminum pipe system which must be moved one or more times per day to meet crop irrigation requirement. May use a variety of different sprinkler sizes. Adapted to most soil types, topography, field size, and shape.

Solid-Set Sprinkler System: Portable aluminum pipe system which is placed in the field(s) at the start of the irrigation season and left in place throughout the season. May use a variety of sprinkler sizes, but normally designed for small sprinklers and low application rate. Adapted to most soil types, topography, field size and shape.

Permanent Sprinkler System: Buried pipe system with only the risers and sprinklers above ground. This system has the same characteristics as the solid-set sprinkler system, except that the labor requirements will be lower. Code as solid-set sprinkler.

SECTION AA - IRRIGATION

Self-Propelled Side-Roll Wheel Move: Self-propelled continuous move side-roll system on towers spaced 80 feet apart designed to be used on square field 1320 feet by 1320 feet and on crops up to 9 feet in height. Water is supplied to unit by flexible rubber hose. Restricted to reasonably flat terrain. Unit can be end-towed from one field to another. This system may also be referred to as a Linear Move System.

Side-Roll Wheel Move: Wheel-move lateral line, designed to be used on rectangular or square fields up to 2000 feet in length and on low growing crops 4 feet or less in height. Unit is moved by a small gasoline engine. Wheel are spaced 40 feet apart. Designed to irrigate a strip 60 feet wide at one setting. Restricted in use to reasonably flat terrain. Unit must be disassembled to move from one field to another. Best suited to fields of at least 20 acres in size and 1000 to 1500 feet long.

Side-Roll Wheel Move With Tow Lines: Wheel move lateral line with tow lines trailing behind the main lateral line, with one to three sprinkles per tow line. Unit is moved by small gasoline engine. Wheels are spaced 40 feet apart. Designed to be used on rectangular or square fields of 40 acres or more in size and up to 1320 feet in length and for crops up to 9 feet in height. A strip up to 180 feet wide can be irrigated at one field to another. Restricted to reasonably flat terrain.

End-Tow: Aluminum pipe sprinkler lateral mounted on dolly wheels or skids spaced 20 to 40 feet apart. Unit is end-towed through the field from one position to another by a tractor. Designed to be used on pasture and hay crops, but can be used on some row crops and tree fields. Designed to be used on rectangular or square fields up to 2000 feet in length with alley through the center of the field. Best suited to flat to slightly rolling topography. Strip up to 80 feet wide can be irrigated at one setting. Enter as a side-roll.

SECTION AA - IRRIGATION

Carousel Sprinkler-Traveler: A system with a rotating boom that sprinkles or sprays water as it propelled forward across a field. Water supply is either hose or supply ditch. Most systems are self-propelled with a mounted gas or diesel engine. Enter as a side-roll.

Center-Pivot System: Self-propelled, electronic or hydraulic continuous move sprinkler or spray nozzle system which travels around a center pivot point on towers spaced 80-100 feet apart. Pattern irrigated is essentially a circle; however, some system have features that provide for coverage of much of the four cottoners. Best suited to square fields of 40 acres or more in size, slope of less than 10% and high infiltration rate soils. Can be used on fields up to 240 acres in size. Unit can be end towed from one field to another, but normally limited to use on three adjacent fields. Low pressure is less than 45 PSI.

Self-Propelled Gun Traveler; Self-propelled by separate engine, or hydraulic continuous move, single large gun mounted on a four wheel trailer. Water is supplied through a flexible rubber hose. Best suited to rectangular or square fields 800 to 1500 feet in length, but can be used on odd-shaped fields. Designed for use on straight rows, flat to slightly rolling topography and medium to high infiltration rate soils. Enter as a big gun.

Reel Type-Hose Pull: Uses a non-collapsible (hard) hose on a reel. The gun type sprinkler attaches to the hose and is stationed at one end of the field and the hose reel at the other. As the water passes through the hose it activates a turbine drive system that rolls the hose onto the reel and pulls the sprinkler gun and carriage across the field - ready for the next move. Enter as a big gun.

SECTION AA - IRRIGATION

Reel Type-Cable Pull: Similar to hose pull systems except the sprinkler gun and carriage is pulled by a cable as the hose is dragged in a loop across the field. These systems often require a grassed strip to operate on. Enter as a big gun.

Gravity Irrigation System

Gated Pipe: A pipe, usually plastic (PVC) or aluminum, that is fitted with spaced closeable gates or holes that permit the water to flow into furrows or basins. For flood irrigation the regulating gates are usually controlled manually but can be automated. This system usually requires some powered pumping system but can flow with gravity from a reservoir or diversion dam.

Siphon Tubes: Short tube usually made of aluminum or plastic that are used to "siphon" water from a ditch into a furrow or field. Tubes are three to five feet in length, are curved and range in size from about one inch to three inches in diameter.

Graded-Furrow: Application of water in small channels having continuous slope in direction of water movement to irrigate row crops. Best suited to sites where furrow grade does not exceed 1%. Fields must be well graded and tail water facilities should be installed. Not designed to apply light application of irrigation. Water is applied to furrows by gated pipe or from ditches by siphon tubes. Enter according to how water is applied.

Contour-Furrow: Similar to graded furrow, but furrows are laid on the contour to reduce slope. Can be used on all soils except light sandy soils and soils that crack. Enter according to how water is applied.

SECTION AA - IRRIGATION

Contour-Ditch: Form of controlled surface flooding. Water is distributed from ditches that run along the contour. Water is discharged through openings in ditch bank, by siphon tubes or over uniformly graded lower lip of ditch. Water flows in unconfined sheet down slope from one contour ditch to the next and is collected in next ditch for reuse. Suited to noncultivated crops such as legumes, grasses, and small grains. Enter according to the application system used.

Contour-Levee: The areas bounded by small contour levees and cross levees are completely flooded. Application rate is considerably larger than intake rate. Water remains on soil until irrigation needs are met and excess is then drained away.

Adapted to crops that can tolerate flooding for up to 12 hours such as rice, cotton, cotton, soybeans, small grains, and grasses. Land forming is required and adequate surface drainage is an essential part of the system. Irrigation water must be of good to excellent quality. Enter as flood application.

Corrugation: Partial surface flooding method. Water is applied in small channels or corrugations evenly spaced across the field. Initial streams are greater than intake rate of soil, but must be cut back when water reaches lower unit to prevent runoff or tail water recovery systems must be installed. Best suited to close growing, non-cultivated crops such as legumes, grasses, and small grains. Enter as flood application.

Graded-Border: Type of controlled surface flooding. Field is divided into strips by parallel dikes. Stripes should have little cross-slope. Best suited to soils with moderately low to moderately high intake rates. Used to irrigate legumes, grasses, small grains, orchards and vineyards. Enter as flood application.

SECTION AA - IRRIGATION

Level-Border (Basin): Rapid application of water to level or nearly level area enclosed by dikes to retain water at uniform depth until it infiltrates the soil. Best suited to soils with moderate to slow intake rate and a moderate to high available water holding capacity. Can be used to irrigate a number of crops without changing the basic layout or rate of application. Accurate land leveling is required. No irrigation water is lost by runoff. Enter as flood application.

Level-Furrow: This method of irrigation uses small channels without grade and is used to irrigate crops planted in or between the furrows. A large stream of water is required and water remains at a uniform depth throughout the furrow until it infiltrates the soil. Best suited to soils having moderate to slow infiltration rate and moderate to high available moisture holding capacity. Best suited to row crops, but can be used for grass crops. Enter as flood application.

Sub-Irrigated: Maintenance of a water table at some predetermined depth below the surface through the use of ditches, sub-surface drainage tubing or mole drains and water control structures. Conditions for use of this system are limited. These conditions include flat topography, an impermeable layer or permanent water table at a shallow depth of 4 to 8 feet and a permeable sand layer where the ditch or tile is installed and a fairly permeable soil profile not less than 24 inches deep. The sub-irrigation system also serves as a drainage system. A good water supply is needed to rapidly supply irrigation water needs. Enter as other.

AA irrigation — cotton — continued AA

7e. *[If SIPHON TUBES or FLOOD was used (see previous page), ask]*

What percent of the ditching was—

(1) cement lined?	822 %
(2) dirt lined?	823 %
(3) *[if dirt lined]* How many times were head ditches put in during 1987?	824
(4) How many **fields** of cotton were irrigated using siphon tubes or flood irrigation?	825

8. What was the most **common** method used to schedule the time and amount of water applied? *[circle code]*

826

- visual observation of the crop and/or soil ..... (1)
- use of a calendar schedule 2
- media information on crop water needs 3
- water delivered by irrigation organization with no scheduling choice 4
- use of soil moisture sensing instruments such as tensiometers or blocks 5
- commercial scheduling service 6

9. I will read several water-saving management techniques, please tell me if this operation practiced any of them.
[circle code]

	YES	NO	
9a. tailwater pits and reuse systems	(1)	2	827
9b. wide-spaced bed furrow systems (widths greater than 45 inches)	1	(2)	828
9c. compacted furrow beds	(1)	2	829
9d. furrow diking	(1)	2	830
9e. short-set irrigation [stopping irrigation prior to water reaching the end of the field]	1	(2)	831
9f. limited irrigation [applying water at a rate less than that which would maximize yield]	1	(2)	832
9g. elimination of pre-plant irrigation applications	1	(2)	833
9h. laser-leveling techniques to adapt field slope	1	(2)	834
9i. surge-flow application	1	(2)	835
9j. cablegation water application management system	1	(2)	836

SECTION AA - IRRIGATION

Drip or Trickle: Maintenance of an adequate portion of the root zone of the plant at, or close to, full soil moisture capacity during the growing or productive cycle of the plant's life. Water is supplied through emitters attached to a supply pipe or porous tubing at a rate of 3 to 15 gallons per minute (gpm) per acre depending upon the crop and the application method. System is designed to be operated daily or at rather frequent intervals. Designed to be used on all soil types, except extremely high infiltration rate soils, on rolling to flat topography, primarily on tree, vine, nursery and greenhouse crops and high cash value row crops. Enter as other.

Column 2 — Enter the cotton acreage that is irrigated by each type of application system. If more than one application system is used on the same acres of the cotton, enter the total acres under each system.

Column 3 — Record the number of times water was applied to cotton with each application system.

Column 4 — Enter the average quantity of water applied per application by each application system. Water quantities must be recorded in acre inches.

Columns 5 and 6 — For the center pivot and big gun applications systems, record the total acreage of all crops irrigated during one season in column 5 and record the number of center pivot or big gun systems used to irrigate these acres in column 6.

If any of the acres of cotton were irrigated with two systems (on same acres) the total acres recorded in cell 820 will exceed 759. If this is the case, complete item 7d indicating that the same acres were irrigated with two systems.

Item 7d — In item 7C check enter YES if the total acres irrigated of the cotton exceeds the planted acreage of the cotton. This should only occur when some of cotton acres were irrigated with more than one application system.

SECTION AA - IRRIGATION

Item 7e — If siphon tubes or flood systems were indicated, enter the percent of each type of ditch used in item 7e (cells 822 and 823). Record in cell 824 the number of times head ditches were plowed in if dirt lined ditches were used. In cell 825, record the number of fields of cotton irrigated by siphon tubes or flood application methods.

Item 8 — Scheduling Irrigation

Irrigation technology has changed drastically in recent years as costs have risen and water availability has declined. To better understand the respondent's decision making factors, item 8 has been added. Most farmers still use sight and touch to determine the fields' water needs, but others have turned to professional scheduling or to sensing instruments. Circle the most common method from those listed.

Item 9 — Water saving techniques

Along with more precise scheduling, many farmers have adopted one or more water saving techniques to more efficiently use their irrigation water. These can range from eliminating certain applications or changing field layout to reuse systems. Circle <u>each</u> listed method that the respondent practices.

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CHAPTER 12
CATTLE ON FEED
1987 FARM COSTS AND RETURNS SURVEY

CHAPTER 12 - CATTLE ON FEED

SECTION P1 - OPERATION CHARACTERISTICS - COF

TERMS AND DEFINITIONS

Beef Cows	Cows, regardless or breed, kept primarily to raise or nurse calves.
Bull	Male.
Cattle on Feed	Cattle or calves on full fed (grain and/or silage for slaughter market and expected to grade Good or better.
Commercial Premix or Mixing Concentrate	A purchased mix of salt, minerals, vitamins and other ingredients, using ground grain as a carrier, that is added to grain and soybean meal to make a complete ration.
Cow	Female that has calved at least once.
Custom Feeding	The ownership of the cattle and calves does not transfer to the operation doing the feeding. The charge paid by the owner of the cattle and calves is either a cost per head or a cost per pound of gain.
Fed Cattle	Fat cattle usually weighing 900-1,200 pounds, sold for slaughter market, and grading Good or better.
(Other) Fed Cattle	Bulls or cows on full feed for slaughter market.
Feedlot Capacity	The maximum number of mature cattle that the feedlot will hold at one time while being fed to slaughter weights.
Full Feed	High protein ration, usually grain and/or silage, fed to cattle for slaughter market.
Heifers	Female that has never calved.
Lagoon	A pond used to hold manure or water containing animal wastes.

SECTION P1 - OPERATION CHARACTERISTICS

Liquid Manure Spreader with Injectors	A mobile manure spreader with attachments to inject liquid animal wastes below the surface of the soil.
Liquid Manure Spreader without Injectors	A mobile manure spreader that distributes liquid animal wastes on the surface of the soil.
Major Remodeling	Any remodeling such that the structure's purpose is changed OR the cost of remodeling is one-third or more of the value of a new structure of like size and type.
Methane Production Unit	A system designed to enhance the production of methane gas from livestock wastes and collect it for use as a fuel.
Milk Cows	Cows, regardless of breed, kept primarily to produce milk for home use or for sale. Exclude nurse cows.
Oxidation Wheel or System	A paddle wheel or other device used to mix air (oxygen into liquid manure held in pits.
Steer	Castrated male.
Stocker and Feeder	Young steers and heifers, weighing approximately 400-700 pounds, on grass and/or maintenance or warm-up ration until being put on full feed for slaughter market or being selected as herd replacement stock.
Warm-up Ration	Less than full feed ration, used to prepare cattle for being placed on full feed.
3-Phase Electrical Service	Usually 4 wires and 2 or 3 transformers serving a farm to permit use of 3-phase instead of single phase electric motors.

P1 OPERATION CHARACTERISTICS — COF P1

1. Did *[the operation as listed on the label]* sell and/or custom feed **at least 20** head of grain fed cattle for slaughter during 1987?
[Fed cattle are defined as fat cattle usually weighing 900 to 1,200 pounds, sold for slaughter market, and grading Good or better.]

☑ YES ☐ NO - *[go to BB]*

2. What percent of **all** the cattle custom fed or sold from this operation last year were sold as **fed cattle for slaughter?** 90 %

[If less than 90 percent, go to BB.]

3. What was the capacity of the feedlot on January 1st, 1987? *[number of mature head]* 645 1600

[If more than 2,000 head, go to BB.]

4. Were any cattle CUSTOM FED on or for this operation in 1987?

☑ YES ☐ NO - *[go to BB]*

4a. On this operation, how many were custom fed FOR someone else? 646 75

4b. How many were custom fed in other feedlots for this operation's account BY someone else? ..... 647 —

CHAPTER 12 - CATTLE ON FEED

SECTION P1 - OPERATION CHARACTERISTICS - COF

General — Exclude cattle feeders that purchase calves or yearlings only for warm-up operations. Include small operations that traditionally feed only one or two batches of cattle in the fall and winter and this is their normal operation.

Item 1 — COF - screening - 20 head or more

This screening question establishes that the sampled operation sold or custom fed cattle for the slaughter market in 1987. Check YES or NO and follow the instructions.

Item 2 — COF - screening - 90% sold as fed cattle

Ask the respondent what percent of **all** the cattle custom fed or sold from this operation were sold as fed cattle for slaughter. A work area is provided to do any calculations. At least 90 percent of all cattle sold in 1987 must have been sold as grain fed finished cattle for slaughter to continue the interview.

Item 3 — COF - screening - January 1, 1987 capacity

The one-time feedlot capacity of mature on January 1, 1987, must have been less than or equal to 2,000 head to continue the interview.

Item 4 — Custom feeding - screening

This question determines if any cattle were custom fed.

Item 4a — Custom fed by this operation for someone else

Enter in this item the number of cattle custom fed on this operation for someone else.

Item 4b — Custom fed for this operation by someone else

Record here the number of cattle custom fed for this operation's account.

Q1 PLACEMENTS — COF Q1

- head -

1. For this operation's feedlot, how many cattle and calves were on full feed for this operation's account and others (custom fed) for slaughter on January 1st, 1987? 648 1015

2. How many were on full feed on December 31st, 1987? 649 1100

3. For this operation's feedlot, how many were placed on full feed for this operation's account and others during the year? 650 1100

4. How many of these *[Item 3]* were—

4a. **born** on this farm or ranch? ..... 651 —

4b. born on **another** farm or ranch that you (the operator) owned or operated? ..... 652 —

4c. **purchased** by this operation? 653 1025

4d. provided by someone else for **custom feeding**? 654 75

4e. from some **other source**? ..... 655 —

What sources were they?

_____ _____

4f. *[4a + 4b + 4c + 4d + 4e]* TOTAL..... 656 1100
[Total must equal Item 3. If not, make corrections.]

5. *[If no cattle and calves purchased or provided by someone else for custom feeding—zero in 4c and 4d—go to R1.]* Were any of the purchased cattle or calves or cattle provided by someone else grazed on grasses, wheat and other small grains or crop residue by this operation before being placed?

☑ YES ☐ NO - *[go to 7]*

5a. What kind of grazing was used? *[check each kind]*	5b. How many head used it?	5c What was the average days grazed?	5d. How many acres were there?	*[if any grazing land rented]* 5e. How many of these acres were rented?	5f. What was the total cost? — $ —
☐ non-tillable pasture or range	657	658	659	660	661
☐ legumes or grasses on tillable land	662	663	664	665	666
☑ small grains.....	667 250	668 90	669 320	670 —	671 —
☐ crop residues	672	673	674	675	676
☐ other *[list]* _____ _____ _____	677	678	679	680	681

6. What was the average weight of these pastured cattle when placed in the feedlot? .....pounds/head 682 800

CHAPTER 12 - CATTLE ON FEED

SECTION Q1 - PLACEMENTS - COF

Item 1 — Cattle and calves on full feed for this operation and others

The number of cattle and calves on feed in this operation's feedlot on January 1, 1987 is a benchmark to measure the size of the operation. Include those for this operation and those being fed for others (custom fed). All cattle and calves included must have been on a fattening ration with the intention of marketing these animals for slaughter market with a grade of Good or better. Most feedlots will have a warm-up ration for 30-60 days before placing the cattle on full feed. If the respondent considers these cattle as being on feed for slaughter, include them in the number reported. If the respondent can separate the cattle out of the total, record only those on full feed.

Item 2 — Cattle and calves on full feed

Record here the number of cattle and calves on full feed in this operation's feedlot on December 31, 1987. This together with Item 1, will give an indication of the change in the number of head in the feedlot during 1987.

Item 3 — Placements

Include the cattle and calves placed on feed during the 12-month period of 1987. Exclude cattle placed on feed in 1986 but were still on hand January 1, 1987. Review Item 1 for the definition of "on feed". The response to this question is a benchmark for items which follow.

Item 4 — Source of placements

This item defines the source of the (Item 3) cattle and calves on feed.

Item 4a — Born on this farm or ranch

Cattle raised on this farm or ranch are the cattle raised on the acres specified in Section A, page 4.

SECTION Q1 - PLACEMENTS - COF

Item 4b — Born on another farm or ranch

Cattle raised on a separate farm or ranch that the respondent owned or operated in another State are the cattle raised on a farm or ranch operated either as part of this operation or another ranch controlled by this operator.

Item 4c — Purchased

Include all cattle and calves purchased from all sources.

Item 4d — Custom fed

Include all cattle fed by this operation for someone else on a custom basis. The ownership of the cattle does not transfer to this operation. The charge paid by the owner of these cattle is either a cost per head or a cost per pound of gain.

Item 4e — Other sources

This includes all cattle placed on feed not specified in 4a - 4d. Write comments explaining the source of these cattle as they will probably be edited to one of the prelisted sources.

Item 4f — Sum 4a + 4b + 4c + 4d + 4e

This total should equal total placements reported in Item 3.

Item 5 — Grazing before being placed

This question refers to only the cattle and calves purchased (4c) or custom fed (4d). Record the number of head which grazed before being placed on full feed.

CHAPTER 12 - CATTLE ON FEED

SECTION Q1 - PLACEMENTS - COF

Item 5a — Kind of grazing

Check the kind of grazing used. Non-tillable pasture or ranch, legumes or grasses on tillable land, small grains and crop residues (corn, sugarbeets, etc.) are pre-listed with additional lines at the bottom of the table to record more than one type of pasture, rental arrangement, etc.

Item 5b — Head

Record the number of cattle that grazed each type of forage. The maximum head to be entered is the number reported or custom fed.

Item 5c — Average days grazed

Average days on pasture is the period the cattle and calves were on this type of forage. If more than one group used the forage, the average days the cattle were on this forage should be recorded.

Item 5d — Acres grazed

Enter the acres grazed.

Items 5e and 5f — Acres rented

If the forage or any portion of the acreage was rented, the acres rented should be entered in 5e and the TOTAL cost for the rented land recorded in 5f. This rental or lease arrangement may be by the acre or by the head, but record the TOTAL cost.

Item 6 — Average weight

Record in pounds per head the average weight of these pastured cattle and calves when placed in the feedlot.

Item 7 — Classification of placements

Record the number of head purchased or custom fed by steer calves, steers, heifer calves, heifers and all others. Enter the total in column (12).

SECTION Q1 - PLACEMENTS - COF

Item 8 Placements by quarter

For each positive answer in Item 7, ask the number of head purchased or custom fed and average liveweight by quarter.

If the cattle were purchased as stockers or feeders and placed on a warm-up ration for 30-60 days before being placed on full fed, record the average liveweight when purchased or beginning custom feeding.

Sum the entries for number of head for each quarter and verify it is the same as Item 7.



Q1 placements — cof - continued Q1

7. How many of the *[4c and 4d]* were **bought or placed** as steer calves (less than 500 lbs.)? Steers? Heifer calves (less than 500 lbs.)? Heifers? Others? *[enter answers in appropriate columns; be sure they add to the total purchased or placed in 4c and 4d; then ask 8 for each column]*

(1)	(2) steer calves No.	(3) steer calves Wt.	(4) steers No.	(5) steers Wt.	(6) heifer calves No.	(7) heifer calves Wt.
TOTAL	683 250		684 610		685	

8. How many of the *[Item 7]* were bought or placed in *[quarter]* and what was their average weight?

January through March of 1987?	686	687	688	689	690	691
April through June of 1987?	692	693	694	695	696	697
July through September of 1987?	698	699	700 300	701 675	702	703
October through December of 1987?	704 250	705 510	706 310	707 705	708	709

	(8) heifers No.	(9) heifers Wt.	(10) others No.	(11) others Wt.	(12) Total No.
TOTAL	710 240		711		712 1100

8. How many of the *[Item 7]* were bought or placed in *[quarter]* and what was their average weight?

January through March of 1987?	713	714	715	716
April through June of 1987?	717	718	719	720
July through September of 1987?	721	722	723	724
October through December of 1987?	725 240	726 680	727	728

R1 MARKETINGS — COF · Continued R1

1. From this feedlot, how many total fed cattle for this operation's account and cattle custom fed were sold for slaughter? 729 1010

2. Now let's turn to sales. How many of the fed cattle sold for slaughter in 1987 were steers? Heifers? Others? *[enter answers in appropriate columns then ask 3 for each]*

	(1) steers No.	(2) steers Wt.	(3) heifers No.	(4) heifers Wt.	(5) other No.	(6) other Wt.	(7) Total
TOTAL	730 707		731 303		732		733 1010

3. How many of the *[Item 2]* were sold in *[quarter]* and what was their average weight?

January through March of 1987?	734 310	735 1120	736 200	737 960	738	739
April through June of 1987?	740 397	741 1250	742 103	743 980	744	745
July through September of 1987?	746	747	748	749	750	751
October through December of 1987?	752	753	754	755	756	757

4. So *[totals for each type of cattle]* were sold for slaughter during 1987. Is that right? *[If not, make corrections.]*

5. And that makes *[grand total]* that were sold for slaughter during the year. Is that right? *[If not, make corrections.]*

CHAPTER 12 - CATTLE ON FEED

SECTION R1 - MARKETING - COF

Item 1 Total marketings

Record the total marketings for all cattle sold from this feedlot for this operation's account and also for those custom fed for slaughter.

Item 2 Marketings by classification

Record the number of steers (including steer calves), heifers (including heifer calves) and other cattle sold in 1987. Sum the classes to a total Column (7) and verify against Item 1.

Item 3 Marketings by classification and quarter

Record the number sold and average liveweight per head when sold by class (each positive answer in item 2) during each quarter.

Item 4 Total by quarter, by class

Total the number sold by quarter, by class and compare against the classifications in Item 2. If not equal, make corrections.

Item 5 Total marketings

Total the number sold by class and compare against the total in Item 2.

S1 FEEDS — COF S1

1. Was any *[read each type in stub]* used as feed in 1987?
[for each YES, ask] What kinds of _____ were used?
[for each kind used, ask] How much was used?

		(1)	(2) name of feed	(3) total amount	(4) unit *[enter code]*
dry grain	☑	758	Corn	759 19000	760 2
		761		762	763
		764		765	766
		767		768	769
high moisture grain	☑	770	Corn	771 25000	772 2
		773		774	775
		776		777	778
		779		780	781
commercial mixes and medicated feeds	☐			782	783
protein supplements	☑	784	Less than 30%	785 —	786 —
		787	30% or more	788 2300	789 5
silage or haylage	☑	790	Corn Silage	791 2000	792 6
		793		794	795
hay	☑		Alfalfa	797 100	798 6
			Other hay	800	801
other feeds* (such as feedable wastes or by products)	☐			803	804

**[not salt and minerals fed separately]*

SECTION S1 - FEEDS - COF

General — This section determines the composition of the feeding ration and related information about feedstuffs and additives.

Item 1 — Types of feed

Ask the respondent if this operation fed any of the feed pre-listed in the stub. For each positive answer, enter a check in the box.

Dry grain - Include all whole, processed or ground grains that are low enough in moisture content to be safely stored. Grains to use are:

Corn	Barley
Wheat	Oats
Milo or Sorghum	Other, such as rye

High moisture grain - Include all high moisture (25 to 38% moisture) that has been treated or ensiled. Grains to use are:

Corn	Barley
Wheat	Oats
Milo or Sorghum	Other, such as rye

Protein supplements - Include all supplements. If the percent protein is given, record it in the margin or column (1), but the percent will not be keypunched. Protein supplements to use are:

Soybean Meal
Cottonseed Meal
Urea
Other

SECTION S1 - FEEDS - COF

Silage or haylage - Silage is generally chopped and hauled directly from the field to storage. The percent moisture is very high. Haylage may be harvested in a similar manner, but is cut and allowed to wilt before being placed in storage. Silage or haylage to use are:

Corn silage
Corn haylage
Sorghum silage
Sorghum haylage
Other silage
Other haylage

Hay - Include all forms of hay that were harvested before being fed.

Other feeds - Include feedable waste or by-products such as corn fodder and crop residues that have been harvested as a by-product. Examples are grain straw, soybean hulls and peanut vines.

Column (1) Office use

Column (2) Ingredient

Enter the name of the feed. If more space is needed than provided (i.e. 3 hays with space for 2), record the data below the table. The State office will have to enter this data in a coded cell.

Column (3) Total amount

Record the total quantity fed to all cattle and calves on feed for the year and specify the unit in column (4).

Column (4) Units

Unit codes are:

Gallons	= 1	Hundredweight (cwt)	= 5
Bushels	= 2	Tons	= 6
Pounds	= 4		

T1 FACILITIES — COF T1

1. *[if any feed other than dry grain used]* The next question is about the types of facilities used last year for storing any kind of cattle feed **except dry grain.**
[record types and ask remaining items for each]

(1) Code	(2) Feed storage types used and no. Type	(3) No.*	(4) When was it built or redone?	(5) What was its size? Meas.	(6) Unit *[enter code]*	(7) What % of the total used was for feeding cattle for slaughter?
805 4	Horizonal Silo	806 2	807 81	808 1000	809 6	810 100 %
811 1	Upright Silo	812 3	813 75	814 10,000	815 2	816 100 %
817 2	Hay Barn	818 2	819 75	820 150	821 6	822 90 %
823 3	Feed Shed	824 1	825 65	826 30	827 6	828 95 %

FEED STORAGE (excluding dry grain)
[code for Item 1, Column (1)]

Bin or tank....1
Shed, open....2
closed....3
Silo, horizontal, permanent....4
temp....5
upright, airtight....6
not airtight....7

2. What types of shelters or pens were used for cattle confinement?
[record types used and ask remaining items for each]

(1) Code	(2) Confinement types used and no. Type building and floor	(3) No.*	(4) When was it built or redone?	(5) What was its size? Measure	(6) Unit *[enter code]*
829 31	Barn, Open Side Obn.	830 2	831 75	832 400	833 7
834 48	Open Pens	835 7	836 65	837 100	838 7
839 — —		840	841 — —	842	843
844 — —		845	846 — —	847	848
849 — —		850	851 — —	852	853

SHELTERS and PENS *[codes for Item 2, Column (1)]*

1st digit
Barn, open sides....1
enclosed....2
Open-front shed....3
Open pens (no roof, no shades, no windbreaks)....4
Open pens, other....5

2nd digit
Solid concrete....1
Partly slotted, w pit....2
Full slotted, w pit....3
Flush gutter, open....4
Flush gutter, closed....5
Scrape gutter, open....6
closed....7
Dirt....8
Other....9

SECTION T1 - FACILITIES - COF

Item 1 Purpose

The purpose of this section is to inventory farm structures by size and age and determine the percent each was used for the cattle feeding operation. Shelters, pens, high moisture grain, silage or haylage storage structures and waste structures are considered as livestock facilities. There may be more facilities used for cattle feeding than those listed. However, information is required for only those listed and have codes associated with them. For example: waste facilities are not required to be listed here. Lagoons and holding ponds are covered in Section V1, page 34.

Column (1) Code

Enter the code number (1-7) of the feed storage structure from the box in the center of the page. This may be done after the interview to avoid interrupting the conversation.

Column (2) Feed storage types

In this column, exclude dry grain storage facilities (for those grains with less than 25 percent moisture).

Column (3) Number

Record the total number of feed storage structures listed in column (2). Similar facilities may be group but you must record TOTAL size, AVERAGE year, etc.

Column (4) Built or redone

Record a two (2) digit response, i.e. 1970 = 70, 1960 = 60, etc. or "49" for all facilities constructed or remodeled before 1949.

SECTION T1 - FACILITIES - COF

Column (5) Measurement

Record the actual size or capacity of each facility.

Following are capacities that are required for each facility.

Codes	Facility	Capacity = Code
1	Bin or Tank	Bushels = 2
2-3	Shed	Tons = 6
4-5	Horizonal silo	Tons = 6
6-7	Upright silo	Bushels or tons = 2 or 6

Column (6) Unit

Enter the unit code. Codes to use are:

Bushels = 2
Tons = 6

Column (7) Percent for cattle feeding

Each completed line will require an entry ranging from 1 to 100 percent.

Item 2 Shelters or pens

In this item you should record all shelters and pens for which there is a code at the bottom of the page.

Column (1) Code

Enter the code number from the bottom of the page for each structure. This may be done after the interview to avoid interrupting the conversation. The first digit identifies the type of structure and the second digit identifies the type of floor.

SECTION T1 - FACILITIES - COF

Column (2) Confinement type

Ask the respondent to list each shelter or pen used for feeder cattle.

Column (3) Number

Record the total number of shelters or pens listed in column (2). Similar facilities may be group but you must record TOTAL size, AVERAGE year, etc.

Column (4) Built or redone

Record a two (2) digit response, i.e. 1970 = 70, 1960, etc. or "49" for all facilities constructed or remodeled before 1949.

Column (5) Size or capacity

Record the actual size or capacity of each facility.

Following are capacities that are required for each facility.

Codes	Facility	Capacity Code	
1	Confinement barn, fully enclosed	Head	= 7
		or sq. feet	= 8
2	Confinement barn, open sides	Head	= 7
		or sq. feet	= 8
3	Open front shed	Head	= 7
4	Open pens (no roof, no shades, no wind-breaks)	or sq. feet	= 8
		Head	= 7
5	Open pens (other)	Head	= 7

Column (6) Unit

Enter the unit code. Codes are:

Head = 7
Sq. Feet = 8

U1 TRACTORS AND TRUCKS — COF U1

1. Now I would like to list the make and model of all the tractors used for cattle feeding.

(Include all tractors owned, rented, leased, or borrowed but exclude tractors and skidloaders provided by custom tractor operators.)

TRACTORS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	[enter make and model]	WHAT WAS IT'S— Drive? *[enter code 2WD=2 4WD=4 Craw=5 4WD Asst=6]*	PTO HP?	Fuel type? *[enter code]*	*[If OWNED]* How many total hours was it used for all uses?	What percent was for cattle feeding?	*[If OWNED]* Was it bought since Jan. 1, 1981? *[If YES—]* When was it bought?	What did it cost?
								— $ —
1	JD 110	569 2	570 12	571 2	572 1200	940 15 %	573 — —	574
2	JD 60	575 2	576 40	577 2	578 300	941 100 %	579 81	580 10,000
3		581	582	583	584	942 %	585 — —	586
4		587	588	589	590	943 %	591 — —	592
5		593	594	595	596	944 %	597 — —	598
6		599	600	601	602	945 %	603 — —	604

CHAPTER 12 - CATTLE ON FEED

SECTION U1 - TRACTORS AND TRUCKS - COF

General — This section inventories the tractors and trucks for the sampled operation and the degree of use for the cattle feeding enterprise.

Item 1 — Tractors used for cattle feeding

Complete the table for all tractors used on the cattle feeding operation including tractors rented or borrowed. Trade labor between farms should be accounted for by including tractors used on the respondent's operation. Tractors owned by this operation, but used exclusively on a neighbor's farm in trade labor are to be excluded.

Exclude tractors used exclusively for any non-cattle feeding operations and tractors and skid-loaders provided by custom tractor operators.

Column (2) — Make and model

Enter the make and model of each tractor used for the cattle on feed operation.

Column (3) — Drive

To further identify the make and model, record a 2 for two (2) wheel drive tractors, 4 for four (4) wheel drive tractors, 5 for crawlers, and 6 for 4 wheel assisted tractors.

Column (4) — Fuel code

Record the fuel code for each tractor. Codes to use are:

Gasoline	= 2
Diesel	= 3
LP Gas	= 5

Column (6) — Total hours used

If the tractor was owned, record the total hours it was used for any and all purposes in 1987.

SECTION U1 - TRACTORS AND TRUCKS - COF

Column (7) Percent for cattle feeding

Record the percent each tractor was used for the cattle feeding operation in 1987. Exclude any work on pastures, forage and feed production and harvesting.

Column (8) Year purchased

If the tractor was owned and bought since January 1, 1981, record the two digit code corresponding to the year purchased, i.e. 1981 = 81 1983 = 83, etc.

Column (9) Cost

The total cost should include the expense of accessories purchased with the tractor, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax.

The value received for any tractor trade-in and/or discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the cost.

If a partnership is established to share the purchase cost, record only the share for which the responding operation is responsible, for example, 1/4, 1/2, and the corresponding dollar amount. For example, two other persons outside of this operation and this operator share 1/3's on a $90,000 purchase. Record 1/3 along the margin and $30,000 in the answer cell.

Item 2 Record the number of pick-up trucks that were owned, leased, rented or borrow and were used, at least partially, in conjunction with cattle feeding.

Exclude pick-ups used by custom truck operators who supplied their own pick-ups or pick-ups owned by the operator and used exclusively for custom work.

SECTION U1 - TRACTORS AND TRUCKS - COF

Item 2a

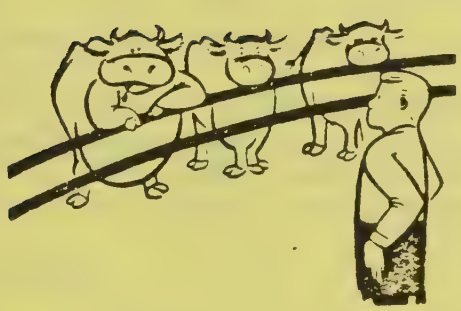
Record the operator's best estimate of the average number of miles driven per pick-up in 1987 for farm related purposes.

Item 3

Trucks

Complete the table for all trucks (excluding pick-ups) used on the cattle feeding operation trucks rented or borrowed. Trade labor between farms should be accounted for by including trucks used on the respondent's operation. Trucks owned by this operation, but used exclusively on a neighbor's farm in trade labor are to be excluded.

Exclude trucks used exclusively for any non-cattle feeding operations.



U1 tractors and trucks — cof — continued U1

2. How many pick-up trucks were used by this operation in 1987 (including owned pick-ups and those under a rent/purchase contract)? *[Include all pick-ups. Do not limit them to those used only for cattle feeding.]* .. 503 1

2a. What was the average number of miles driven per pick-up for **farm use only?** 504 12,000

3. Now I would like to list the make of all trucks (excluding pick-ups) used in 1987 for cattle feeding.

(Include all trucks owned, rented, leased or borrowed, but exclude trucks provided by custom truck operators.)

(1)	(2)	TRUCKS *[excluding pick-ups]* (3)	(4)	(5)	(6)	(7)	(8)
		WHAT WAS IT'S—		*[If OWNED]*		*[if OWNED]*	
Line No.	*[enter make]*	Fuel type? *[enter code*	Size? *[enter code] single axle = 1 tandem axle = 2 semi = 3]*	What were the total miles driven for **FARM USE?**	What percent was for cattle feeding?	Was it bought since Jan. 1, 1981? *[if YES—]* When was it bought?	What did it cost?
							— $ —
11	GMC	605 2	606 2	607 3000	608 10 %	609 — —	610
12		611	612	613	614 %	615 — —	616
13		617	618	619	620 %	621 — —	622
14		623	624	625	626 %	627 — —	628
15		629	630	631	632 %	633 — —	634

SECTION U1 - TRACTORS AND TRUCKS - COF

Column (2) Make

Enter the make of each truck used for the cattle on feed operation.

Column (3) Fuel code

Record the fuel code for each truck. Codes to use are:

Gasoline	= 2
Diesel	= 3
LP Gas	= 5

Column (4) Size

Enter size code 1-3 for each line entry based on the axle size or if it was a semi.

Column (5) Total miles for farm use

If the truck was owned, record the total miles it was used for farm or ranch purposes in 1987.

Column (6) Percent for cattle feeding

Record the percent each truck was used for the cattle feeding operation in 1987. Exclude any work on pastures, forage and feed production and harvesting.

Column (7) Year purchased

If the truck was owned and bought since January 1, 1981, record the two digit code corresponding to the year purchased, i.e. 1981 = 81, 1983 = 83, etc.

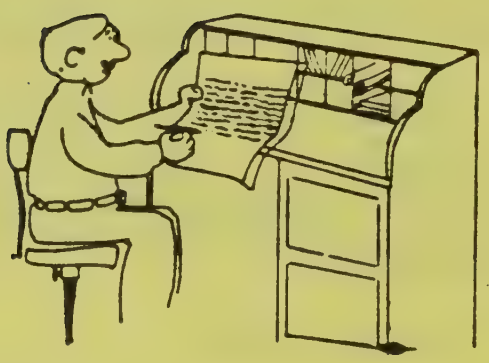
Column (8) Cost

The total cost should include the expense of accessories purchased with the truck, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax. Registration and license fees may be included in the purchase price if they were not a separate item on the bill.

SECTION U1 - TRACTORS AND TRUCKS - COF

The value received for any truck trade-in and/or discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the cost.

If a partnership was established to share the purchase cost, record only the share for which the responding operation was responsible, for example, 1/4, 1/2, and the corresponding dollar amount. For example, two other persons outside of this operation and this operator share 1/3's on a $90,000 purchase. Record 1/3 along the margin and $30,000 in the answer cell.



SECTION V1 - EQUIPMENT AND MACHINERY - COF

Item 1 Feed handling equipment

This section determines the number, size, age and type of power for the equipment and machinery used in the cattle feeding operation in 1987.

Column (1) Code

This should be coded corresponding to the type of equipment listed in column (2). Codes may be found on page 33 and entered after the interview.

Column (2) Equipment type

Ask the respondent to list the equipment and machinery used during 1987 on the cattle on feed enterprise. More than one piece of identical equipment may be recorded here on one line <u>if all of the data for that item are the same</u>. If more than eleven (11) lines are needed, write the additional equipment at the bottom of the page or in the white space on the next page. The State office will have to combine these into a coded cell.

Column (3) Size or capacity

Enter the size or capacity of each item. The reporting units are specified on page 33. Liquid feed handling systems (code 5), liquid manure agitators (code 17), and methane production units (code 19) do not require a size code. If the respondent cannot report in the designated unit, record the data as reported and the State office will convert the data.

V1 EQUIPMENT and MACHINERY — COF V1

1. What special feed handling equipment or machinery did this operation use last year? *[fill in the table; codes shown on next page may be entered later]*

(1) code	(2) [equipment type] name	(3) What size was it?	(4) How was it powered? [enter codes]	(5) [If OWNED] How many TOTAL hours was it used?	(6) What percent was for cattle feeding?	(7) [If OWNED] Was it bought since Jan. 1, 1981? When was it bought?	(8) What did it cost? — $ —
860 6	Roller Mill	861 20	862 14	863 400	864 100 %	865 __	866
867 7	Feed Mixer	868 2	869 14	870 200	871 100 %	872 __	873
874 10	Self-Unloading Wagon	875 20	876 23	877 300	878 100 %	879 __	880
881 9	Hay Wagon	882 10	883 23	884 —	885 — %	886 __	887
888 21	Manure Spreader	889 315	890 23	891 120	892 100 %	893 __	894
895 1	Grain Leg	896 15	897 14	898 —	899 — %	900 __	901
902		903	904 __	905	906 %	907 __	908
909		910	911 __	912	913 %	914 __	915
916		917	918 __	919	920 %	921 __	922
923		924	925 __	926	927 %	928 __	929
930		931	932 __	933	934 %	935 __	936

1a. Any others? *[enter above]*

1b. What about special manure handling equipment?

V1 equipment and machinery — cof — continued V1

Codes for Item 1, Column 1

Feed Handling Equipment

	Size or capacity	Code
Conveyor or grain leg (chain auger, etc.)	*ft. length*	*1*
Grinder, feed		
portable grinder mixer (with or without scales)	*tons/hour*	*2*
stationary grinder (with or without scales)	*tons/hour*	*3*
Liquid system	*none*	*4*
Mill, hammer	*H.P.*	*5*
roller	*H.P.*	*6*
Mixer, feed	*pounds*	*7*
Pre-	*pounds*	*8*
Wagon or box		
utility	*tons*	*9*
self-unloading	*tons*	*10*
Water, trailer or truck	*gallons*	*11*

Manure Handling Equipment

Flush system, tank	*gallons*	*12*
high vol pump	*gal/min*	*13*
Loader, front end	*ft/wide*	*14*
skid or self-propelled	*ft/wide*	*15*
Liquid agitator	*none*	*16*
pump	*gal/min*	*17*
Methane production unit	*none*	*18*
Oxidation wheel or system	*H.P.*	*19*
Scraper blade	*ft. wide*	*20*
Spreader, liquid, w injectors	*gallons*	*21*
no injectors	*gallons*	*22*
solid	*bushels*	*23*

SECTION V1 - EQUIPMENT AND MACHINERY - COF

Column (4) Power source

Enter the code to indicate the power source (reference SC - 5) for each item. Codes to use are:

Tractor using gasoline	= 22
Tractor using diesel	= 23
Tractor using LP gas	= 25
Tractor using other	= 29
Truck using gasoline	= 32
Truck using diesel	= 33
Truck using LP gas	= 35
Truck using other	= 39
Electricity	= 14
Self-propelled	= 19
Other method	= 94

Column (5) Total hours used

If the equipment was owned, record the total hours it was used in 1987. If more than one item is represented by this line entry, total the hours of each item. If the respondent cannot report total hours, it may be left blank, but not having data for each item will weaken the survey indication. Conveyor or grain leg (code = 1), liquid feeding system (code = 4) and utility wagon or box (code = 9), flush manure handling systems (codes 12-13), liquid agitators (codes 16-17) and methane production units (code 18) do not require an entry in column (5) or (6).

SECTION V1 - EQUIPMENT AND MACHINERY - COF

Column (6) Percent for cattle feeding

Record the percent each piece was used for the cattle feeding operation in 1987. Exclude any work on pastures, forage and feed production and harvesting. Conveyor or grain leg (code = 1), liquid feeding system (code = 4) and utility wagon or box (code = 9), flush manure handling systems (codes 12-13), liquid agitators (codes 16-17) and methane production units (code 18) do not require and entry in column (6).

Column (7) Year bought

If the equipment or machinery was owned and bought since January 1, 1981, record the two digit code corresponding to the year purchased, i.e. 1981 = 81, 1983 = 83, etc.

Column (8) Cost

The total cost should include the expense of accessories purchased with the equipment, special servicing, delivery charges, dealer preparation, Federal Excise Tax and sales tax.

The value received for any trade-in and/or discount or rebate received are to be considered as a cost reduction and taken into consideration when computing the cost.

If a partnership was established to share the purchase cost, record only the share for which the responding operation was responsible, for example, 1/4, 1/2, and the corresponding amount. For example, two other persons outside of this operation and this operator share 1/3's on a $90,000 purchase. Record 1/3 along the margin and $30,000 in the answer cell.

Item 1a Prompt

This is a prompt to be certain no equipment or machinery was omitted.

SECTION V1 - EQUIPMENT AND MACHINERY - COF

Item 1b — Manure handling equipment

After listing the special feed handling equipment, ask the respondent for any special manure handling equipment. Types, codes and size or capacity are on page 33.

Item 2 — Miscellaneous equipment

Read or have the respondent review the list of equipment and machinery and check YES or NO for those items used during 1987 on this cattle on feed enterprise.

Item 3 — Combined size or capacity

For those items checked YES in item 2, ask the combined (if more than one) size or capacity in the units specified.



V1 equipment and machinery — cof — continued V1

2. Last year, did this feedlot have any—
[check boxes. If YES, ask 3.]

		NO	YES	3. What was the combined size or capacity?	
2a.	fence with feed bunks WITH concrete aprons?	☐	☑	530 200	total ft
2b.	fence with feed bunks WITHOUT concrete aprons?	☐	☑	531 700	total ft
2c.	portable feed bunks?	☐	☑	532 100	total ft
2d.	self-feeders for concentrates?	☐	☑	533 5	total tons
2e.	self-feeders for liquid feed?	☑	☐	534	total gals
2f.	lagoons or holding ponds *[for waste]*?	☐	☐	535 1	total surface acres

4. Last year, did this feedlot have any—
[check boxes. If YES, ask 5.]

		NO	YES	5. How many?
4a.	generators?	☐	☑	536 1
4b.	livestock trailers?	☐	☑	537 2
4c.	scales (drive-on or work-on)?	☐	☑	538 1
4d.	high pressure sprayers?	☑	☐	539
4e.	squeeze chutes?	☐	☑	540 1
4f.	three-phase electrical service?	☐	☑	541

6. Was any of the manure disposed of as a solid? As a liquid? *[check]*

☑ Solid ☐ Liquid

6a. What percent of the (solid, liquid) manure was—

	Solid	Liquid
(1) put on this operation's land?	542 100	543
(2) put on someone else's land free?	544	545
(3) disposed of some OTHER way?	546	547
	100%	100%

SECTION V1 - EQUIPMENT AND MACHINERY - COF

Item 4 More miscellaneous equipment

Read or have the respondent review the list of equipment and check YES or NO for those items used during 1987 on this cattle on feed enterprise.

Item 5 Number

For those items checked YES in item 4, ask the number. This should reflect a count of only the items used for cattle on feed, not how many were on the operation. The three-phase electrical system requires only a check to determine if this operation has a three-phase service or on. A three-phase electrical service is usually 4 wires and 2 or 3 transformers serving a farm or ranch to permit use of three-phase instead of single phase electric motors.

Item 6 Solid or liquid manure?

Ask the respondent if any of the manure was disposed of as a solid or as a liquid and check the appropriate box(es). The final method of disposing of the manure defines how the manure was handled. If the manure was in a non-liquid form when applied to crops, it is a "solid". If solid manure was flushed into a lagoon and pumped or spread on crops, it is a "liquid".

Item 6a Disposition of manure

For each checked box (solid or liquid), record the percent of the total manure which was:

(1) put on this operation's land,
(2) put on someone else's land free of charge, or,
(3) disposed of in some other way.

The total for each category should equal 100%.

W1 MISCELLANEOUS — COF W1

1. What were the feedlot expenses in this feedlot for OWNED and/or CUSTOM FED cattle last year for—

		— $ —
1a.	veterinary services (including medicine and professional fees, medicine, and medical supplies, but exclude pre-mixed medicated feeds)?	548 4000
1b.	pesticides?	549 —
1c.	growth hormones and stimulants?	550 1200
1d.	custom processing, grinding or mixing of feed?	551 —
1e.	custom manure removal?	552 —
1f.	custom hauling for FEEDER cattle and calves?	553 5500
1g.	custom hauling for SLAUGHTER cattle and veal calves?	554 7200
1h.	commissions on PURCHASES of feeder cattle?	555 —
1i.	commissions, marketing charges, and yardage on SALES of slaughter cattle?	556 3000

2. Was any bedding used last year?

☐ YES ☑ NO - *[go to BB]*

2a.	How many tons were used?	557
2b.	How much of that was purchased? ....tons	558

(1) *[If none purchased, go to BB.]* What was the major type purchased? *[major type means largest quantity]* _____ 559 [redacted]

— $ —

(2) What was the (average) cost per ton? ....dol/ton 560

CHAPTER 12 - CATTLE ON FEED

SECTION W1 - MISCELLANEOUS - COF

Item 1 — This section determines the costs associated with the feedlot enterprise that are not available from any other source, especially by size groups.

Record the costs associated with the cattle feeding enterprise for each specified item. Each item 1a through 1i is specific and the cost data reported should include only the requested items. All respondents will have other costs and if there are costs which the respondent wants included, record them as notes below the table. Prices paid for feed, fuel, livestock, etc. will be obtained from the regular price program.

Item 1a — Veterinary services and medicines

Include all veterinary services including medicine and professional fees. All medical supplies and medicines purchased as separate items (without professional fees or services should be included. Include all medicines purchased separately to be mixed in feed.

Item 1b — Pesticides

Include all pesticides.

Item 1c — Growth hormone and stimulants

Include all growth hormones and stimulants such as Ralgro and Synonex.

Item 1d — Feed processing

Include all costs of grinding and mixing feeds which the respondent paid to a custom processor.

Item 1e — Custom manure removal

Custom manure removal includes all costs of manure removal paid by the respondent to a custom operator who furnished equipment and labor for its removal.

SECTION W1 - MISCELLANEOUS - COF

Item 1f — Custom hauling feeder cattle

Custom hauling includes charges for transportating feeder cattle and calves. These charges must include hired vehicles and labor.

Item 1g — Custom hauling slaughter cattle

Custom hauling includes charges for transporting slaughter cattle and veal calves. These charges should include hired vehicles and labor for animals going directly to market.

Item 1h — Commissions on purchases

Commissions on purchases of feeder cattle and calves should be the amount paid by the purchaser (respondent).

Item 1i — Commission for sale of slaughter cattle

Commission and yardage costs are for the sale of slaughter cattle. Extremely high rates should have a note written to explain the rate.

Item 2 — Bedding

The purpose of the item is to determine the quantity, type and price of purchased bedding. This item screens to determine if any bedding was used any place on the cattle on feed operation. If bedding was not used, go to Section BB, page 36.

Item 2a — Tons used

Enter the respondent's estimate in whole tons.

SECTION W1 - MISCELLANEOUS - COF

Item 2b — Tons purchased

Enter the quantity of bedding purchased or received free of charge and used during 1987. The quantity reported for item 2b may be the same as or less than the quantity in item 2a. Purchased or free bedding is any bedding that was not produced on this operation. Include all bedding such as straw, sawdust, shavings, etc., as well as any bedding that was obtained for any payment-in-kind. If none was purchased or received free of charge, go to Section BB, page 36.

Item 2b (1) — Major type

Specify the major type (largest quantity) of bedding purchased or received free.

Item 2b (2) — Cost

Enter the cost per ton to the nearest dollar. Bedding received free should be recorded as zero cost. Bedding received for payment-in-kind, such as trading beef for bedding, or custom work for bedding, should have an estimate of the value entered for the service or item traded. Write a comment to explain the situation.



CHAPTER 14

APPENDICES

1987 FARM COSTS AND RETURNS SURVEY

FREE SUBSCRIPTION OFFER - RESPONSE RATE TEST

States Involved: Arkansas, Indiana, Nebraska, New York, Oregon

General

The 1987 FCRS will include a five state test of response rates where half the sample in each state is offered a free, one-year subscription (11 issues) to the FARMLINE publication. All area-frame operators in even-numbered segments, plus all list operators in even-numbered list replicates will be offered a free subscription.

The purpose of the research is to determine if the offer of a free FARMLINE subscription will have any significant impact on the respective FCRS response rates. Outside of the introductory statement, there are no changes in the data collection procedures for respondents in these states.

Face Page

Questionnaires for selected respondents will have a modified introductory statement stapled to the top of the face page. This attachment will be a half page and is designed to be read verbatim. For this test to be successful, we must make the subscription offer up front, in the introduction.

Enumerator Instructions

Once you receive your assignments, review the questionnaires to see that the modified introductory statement has been stapled to or included with the questionnaires that should receive it. The only difference between the regular introduction and the modified one is the sentence "We´re giving a free, one year subscription of the FARMLINE publication (offer November issue) to everyone that helps us out on this survey."

After the introduction you must circle the Yes (1) or No (2) code in cell block 005, depending on the answer you receive. Circle a code 1 (Yes) whenever you get a completed interview and the operator wants a free subscription. Circle a code 2 (No) for all refusals, inaccessibles, out of business, etc. Also circle a No for any operator that cooperates but does not want a subscription.

This free subscription offer is only to be extended to those sampled operators that cooperate by giving an interview. Any operator that refuses, but still wants a subscription, may request one through the November FARMLINE issue that you distribute.

Once you finish with the coding of cell 005, proceed to the face page and start the interview.

EXAMPLE STATEMENT:

Note: This should be attached (stapled) to face page of respective questionnaires and keyed.

AR, IND, NE
NY, OR

INTRODUCTORY STATEMENT FOR 1987 FCRS RESPONSE RATE TEST
{FREE SUBSCRIPTION OFFER}

INTRODUCTION

[*Introduce yourself and ask for the operator. Rephrase in your own words.]* We are collecting information on farm costs and returns and need your help to make the information as accurate as possible. We are giving a **free,** one year subscription of the **FARMLINE** publication [*offer November issue*] to everyone that helps us out on this survey. Your report is confidential and used only for statistical purposes and economic analysis. Response is voluntary but your cooperation is essential to help us determine the economic health of agriculture.

[Was offer accepted? circle answer]

005

YES = 1
No = 2

SPECIAL AREA SEGMENTS

General

The 1987 FCRS will include research on a different area frame estimator (commodity weighted estimator) using JES segments in 14 states: Arizona, Colorado, Delaware, Idaho, Maryland, Montana, New Jersey, New Mexico, Oregon, Pennsylvania, South Carolina, South Dakota, Utah, and Wyoming. All area tracts sampled for FCRS in these 14 states will be included in the research. No AES (economic) segments will be sampled for the 1987 FCRS in these states. The FCRS area sample will consist of resident and nonresident tracts that qualified for a Part A questionnaire on the 1987 JES and that are nonoverlap with the FCRS list. All sampled tracts will come from JES segments that are in the fourth and fifth years of the 5-year rotation cycle (except in a few isolated circumstances where this is not possible).

Field handling of these area frame questionnaires will be very similar to that for the list frame questionnaires, in that there will be no "canvassing" of tracts within the segments. The only required area frame interviews are for those questionnaires with a pre-printed label.

The purpose of the research is to determine if the use of JES segments or the use of a different estimator can improve the area frame estimates. There is no change in the data collection procedures for list frame questionnaires.

Enumerator Instructions

You should interview each sampled area tract as it existed at the time of the 1987 JES (June 1, 1987). That is, ignore any changes to the operating unit that may have occurred since June 1. If

that may have occurred since June 1. If a recording error was made on JES (e.g., misspelling of name, wrong person identified as the operator, incorrect type of operating arrangement reported), make corrections and interview the tract as it actually existed at the time of JES. The expense questions still refer to the entire calendar year 1987. A few examples should clarify these points.

Example 1: The name on the FCRS area sticker is Roy Adams, whose farm was individually operated on June 1, 1987. The FCRS enumerator learns that Mr. Adams has retired and his son now operates the farm. The enumerator should interview Mr. Adams about his expenses during the time he farmed in 1987 and note on the questionnaire that he has retired. There is no need to interview the son.

Example 2: The name on the FCRS area sticker is Jack McFee. The FCRS enumerator discovers that the operator's name was recorded wrong on the JES. The correct name is "McPhee". The enumerator should correct the spelling and conduct an interview.

Example 3: The name on the FCRS area sticker is David Banwell who operated individually on June 1, 1987. In September, Mr. Banwell brought his son into the operating arrangement, forming a partnership. The enumerator should complete a questionnaire for Mr. Banwell's 1987 expenses as an individual operator. All partnership expenses should be excluded. There is no need to complete a questionnaire for the partnership, since it was formed after June 1.

Example 4: The name on the FCRS area sticker is Brian and Gary Daniels. The type of operating arrangement checked is

partnership. The FCRS enumerator discovers that the true operating arrangement has always been an individual arrangement with Brian making all the day-to-day decisions. Brian's son Gary helps his father farm, but has never shared in the decision-making. The enumerator should make corrections to the label and explain the situation in notes. He or she should complete an interview for the operation as it truly existed June 1, 1987--that is, as an individual operation with Brian as the operator.

Example 5: The name on the FCRS area sticker is Amy Samuels. The type of operating arrangement checked is individually operated. Amy also has farmed in partnership with her father for several years. The enumerator was not assigned a questionnaire for the partnership. The enumerator should complete the assigned questionnaire for Amy's individual arrangement and note on it that Amy also farms with her father in a separate arrangement. He or she should not complete an interview for the partnership.

Special Area Data Collection Forms

The research will use special versions of the area screening forms and questionnaires. There will be special area expenditure versions in all 14 states. A special tobacco area screening form and questionnaire will be used in South Carolina. A special cotton area screening form and questionnaire will be used in Arizona. A special corn area screening form and questionnaire will be used in Colorado, Delaware, Maryland, Pennsylvania, South Carolina and South Dakota. There are no changes to any of the list questionnaires.

Area Screening Forms

The area screening forms contain a questionnaire for each tract in the

interview is required. Each questionnaire will have a JES label on the face page identifying the operator. The screening forms contain no screening questions to be asked of the operator and will not be used in any way for data collection. All area interviews begin directly on the labeled questionnaires.

Area Questionnaires Special Instructions

Face Page

The office should have entered the operator's name, address, phone number and operation name (if any) on the face page. Verify this information, show corrections as needed, and proceed.

Page 2

Page 2 is blank

Page 3

The office should have entered the type of operating arrangement from JES in item 1. Verify this with the respondent and proceed. If the type of operating arrangement on JES was a partnership, the office will have entered the number of partners (including the operator) in code box 017. Ask item 2 and check the appropriate box. Regardless of the answer to item 2, continue the interview on page 4.

Page 4

The office may have entered acres operated in item 1. If it has, verify the information and ask about annual cash rent, if necessary. Otherwise, ask item 1 and record the acreage information. In any case, proceed with the remainder of the interview after completing item 1.

Page 23

(Corn, Tobacco, and Cotton Versions Only): The office should have coded box 002 at the top of page 23 to indicate whether the operator lived inside or outside the segment on June 1 (1=inside, 2=outside). Do not change this entry, even if it was recorded incorrectly or the operator has moved since June 1. The purpose of code box 002 is: (1) to allow Washington to handle the questionnaire correctly in the summary, and (2) to allow you to skip the COP sections of the corn, tobacco, and cotton questionnaires for nonresident tract operators. If code box 002=1, continue the interview with the COP sections. If code box 002=2, skip to Section BB. (The skip instruction appears only on the COP questionnaire versions. It will always be necessary to complete an entire interview for all expenditure version questionnaires.)

Conclusion

If the operation was identified as a partnership on JES, the office should have supplied the partners' names in item 1. Verify this information with the respondent and show corrections as needed. There is no need to ask if the operator was involved in any other operating arrangement or if anyone else in the household operated a farm or ranch in 1987. This information was obtained at the time of JES, so there is no reason to ask it again.

FARM/RANCH FINANCIAL ANALYSIS: 1987 FCRS

GENERAL

Enumerators in Alabama and Wisconsin will be able to offer an "individualized report" to each person in the list frame who participates in the survey. For the first time, when a respondent asks, "What's in this for me?" you can point to this report. This report shows how an operation ranks in relation to other operations in your state.

Each operation's standing in relation to others will be presented as a percentile rating. If the ranking is 80, for example, it means that 80 percent of the total farm operations are rated lower than or equal to the sampled operation for the category shown.

An example of the individual report appears on the next page. The State Statistician will mail this report to those requesting it on June 19, 1988. He will also enclose a letter that explains each of the numbers in more detail.

Enumerator Instructions

You send a report to the respondent by entering "1" in cell 013 on the face page of the questionnaire. Enter "2" if the respondent does not want to receive a copy.

At the end of the survey, let your supervisor know if this offer enabled you to complete more questionnaires than you would have been able to otherwise.

EXAMPLE REPORT:

FARM/RANCH FINANCIAL ANALYSIS: 1987 FCRS

Lockwood Ranch
John D. Doe
Route 5
Anywhere, Anystate 22020

LSF: 865000120

Dear Mr. Doe:

The financial characteristics of your operation are presented below.

Farm Characteristic	Percentile
Acres Operated 1/	70
Net Worth 2/	30
Crop Sales per Acre	50
Livestock Sales per Acre	60
Seed and Plant Exp. per Acre	20
Fertilizer Expenses per Acre	70
Chemicals and Pesticide Expenses per Acre	42
Fuel Expenses per Acre	90
Cash Wages per Acre	20
Feed Expense per Acre	70
Interest Expense per Acre	61
Net Cash Farm Income 3/	64
Net Farm Income per Acre	71
Total Debts/Total Assets	65
Total Expenses/Gross Cash Income	61

1/ Acres owned plus land rented (excluding PIGA land) less land rented to others.
2/ Total assets minus total debt.
3/ Gross cash income from farming minus all cash operating expenses including interest.